



I.M.A.G.S.B. NEWS BULLETIN

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GUJARAT MEDICAL JOURNAL

INDIAN MEDICAL ASSOCIATION, GUJARAT STATE BRANCH

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**STATE PRESIDENT
AND
HON. STATE SECRETARY'S
MESSAGE**



Dear Members,
Seasons Greetings,

With unlock 3.0, the people have relaxed, winter is approaching when a new wave is expected. We have seen that summer had no effect on the number of cases.

There are six strains of the coronavirus: L strain (original strain in Wuhan), strains S, V, G, GR, and GH. Strain G and its related strains GR and GH are the most common. In North America, the most widespread strain is GH, while in South America we find the GR strain more frequently. In Asia, where the Wuhan L strain initially appeared, the spread of strains G, GH and GR is increasing. Globally, strains G, GH and GR are constantly increasing. Strain S can be found in some restricted areas in the US and Spain. The L and V strains are gradually disappearing (Science Daily). Up to 30% of additions/substitution can occur in the same strain. If the virus undergoes 70% mutation, it becomes a new virus. When we define a surge, we should consider few points: Is it a new mutation? Is it a new strain? How does a virus behave? Is it a superspreader? The surge can be due to a new virus, same virus but mutated and same virus but local spread (superspreader, Dharavi). If surge is due to a new strain, the mortality may be different and higher initially. If it is a surge in existing strain, then spread will be high, but mortality will be low.

RT PCR detects viral antigens (E, S, M, ORF, NS, RDRP); if e antigen is negative, no corona. All labs do not test for all antigens. If the kits test for multiple antigens, the sensitivity of the test is higher. This will reduce the chances of false negative result. Cohort pooled Ct value high, this means that the virus is getting attenuated. Ct value cannot be the only basis of the report (ICMR), it has to be combined with clinical interpretation; Ct value can change according to the kit used; it may be operator dependent. The cut-off value must also be mentioned. It is important for clinicians to know the viral load. Family cluster may have varied symptoms. But, people are not coming forward. Prevention is very important, but it is not 100% preventable; our concern is to also reduce the mortality. All efforts today are towards reducing the infection and less effort in reducing the mortality.

Western models will not work in India. We should learn from each other about things that are unique to India. It is important to identify Day 1. CT scan can become positive on Day 3. If RT PCR report is not available or it may be false positive, then CT becomes important. Don't wait for day 5, as complications may set in by this time. One must act on day 3.

Since couple of days in Ahmedabad and Surat and few other parts of Gujarat cases of covid-19 are decreasing. Easily patients get Hospital admission as well as necessary medicines and injections. Mortality rate in public is around two to three percents. Till now at all India level more than 20 lacs people suffered from covid-19 and there are 43,000 death amongst them. At all India 1500 doctors are affected with covid-19 and we lost 200 doctors. So death ratio is more than 10% among medical fraternity. This is a alarming situation. More than 75% of doctors are above the age of 50 years, and more than 50% members are general practitioners. So we should analyse this situations.

Few points which are observed are the viral load and more contact time. Doctors are constantly exposed to patients so viral load is more. The patients like to spend more time with the doctor so more contact time in a small cabin also lead to more infection. Overburden, insufficient sleep, insufficient rest, irregular in food, anxiety and stress lead to lack of Nutrition, lack of resistance power and more vulnerable for infection. Comorbid conditions diabetes, blood pressure, self medication overconfidence, delay in getting attention may also contribute to this condition. We wish that all the private practitioners must be taking all precautions to avoid any infection. To solve this issue doctors above the age of 60 years, doctors above the age of 50 years with comorbid condition must stop the practice.

Long Live IMA, Jai IMA

DR. C. S. JARDOSH
(President, G.S.B.I.M.A.)

DR. KAMLESH B. SAINI
(Hon. State Secy. G.S.B.I.M.A.)

FROM THE DESK OF EDITORS



Dear friends,

While putting this issue of Gujarat Medical Journal (GMJ) in your hands. Because of situation created by Corona pandemic and lockdown, we regret that we could not publish Gujarat Medical Journal (GMJ) in July and publishing on 31st August

You all know that GMJ is indexed in **Index Copernicus International” (ICI), and all the issues of GMJ since 2015 can be viewed on**

<https://journals.indexcopernicus.com/search/details?id=43553>

Obviously the Gujarat Medical Journal should look for impact factor which is the next big thing for any scientific journal. To achieve this we need to put in a lot of efforts. We would like to request all the research minded doctors in Gujarat who are into research and publications to seriously consider GMJ for their manuscripts. We are also making all efforts to make our journal website at par with any leading medical journal. We hope to bring in many more value added features to our journal within a reasonable period of time.

Our country and particularly, Gujarat has entered in the field of medical tourism. People from developed and under developed countries come here for treatment and we provide world best treatment to them at a cheaper rates than that is available in developed countries. Apart from big cities of Gujarat like Ahmedabad, Surat. Vadodra and Rajkot-Bhavnagar, even small centers like Anand and Nadiad provide world class treatment in the field of cardiology and nephrology. Our hospitals and expertise are world class and that pushes the medical tourism in Gujarat far ahead. From our own domestic population also we get large number of patients. This provides opportunities for research to our doctors. Now we have better infrastructure facilities for data collection and access to world data, for comparison. It has provided a big boost to research work in our state.

Without making any compromise with our laid down policy, we have made all the efforts to make GMJ more informative and more interesting so that large number of our colleagues read it and utilize the knowledge and information provided in it. For this, we welcome your suggestions and comments also.

In this issue, we have tried to include few articles related to Corona pandemic and its effect, we hope you will appreciate them all.

Our particular thanks to Dr. Yogendra Modi along with our ex-editor Dr. Amitbhai P. Shah and Dr. Urvesh Shah (GCS medical college Ahmedabad) in maintaining indexation status of GMJ with Index Copernicus International. Dr. Urvesh Shah very vigilantly keeps watch on affairs of Indexation of GMJ, his painstaking efforts in uploading all the issues of GMJ on Index Copernicus website made them available there. Once again a word of thanks for him.

Our sincere thanks to GSB president Dr. Chandresh Jardosh and hon. secretary Dr. Kamlesh Saini for encouragement and suggestions and giving us a free hand in publication of this journal. We are also grateful to GSB past presidents Dr. Kirtibhai Patel, Dr. Jitubhai Patel and Dr. Mahendrabhai Desai for their guidance and help.

With regards,

DR. K. R. SANGHAVI
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I.M.A. G.S.B. NEWS BULLETIN (Gujarat Medical Journal)

Vol. : 15

AUGUST-2020

Issue : 08

CONTENTS

- * State President and Hon. Secretary's Message.....15
- * From the Desk of Editors.....16

ORIGINAL ARTICLE

- * **Clinical analysis of Clinically Significant Macular Edema (CSME) by Slitlamp Biomicroscopy with +90D lens, Optical Coherence Tomography (OCT) and Fundus Fluorescein Angiography (FFA) among patients of diabetes mellitus - cross sectional observational study.**
Dr. Nilesh Parekh*, Dr. Chintan Bhuvaa**, Dr. Sandeep Kumar Yadav**, Dr. Sneha Shah**.....20
- * **Consensus for Management of hyperglycemia for COVID-19 patients**
Dr. Sanjeev Pathak , Dr. Banshi Saboo, Dr. Vidisha Patel, Dr. Urman Dhruv, Dr. Rucha Mehta, Dr. Om Lakhani, Dr Dharmendra Panchal.....26
- * **Myths and beliefs among patients regarding vitiligo in outdoor unit of skin department, tertiary care teaching hospital.**
Dr. Shahenaz Malek*, Dr. Bharti N. Karelia**.....31
- * **A Study of Cardiac Disease in Pregnancy and Fetomaternal Outcome**
*Dr. Tushar M. Shah , **Dr. Nairuti Sompura, ***Dr. Disha Ghoniya, ****Dr. Anjali Kanada34
- * **Only home kitchen feeds v/s commercial nutritional supplementation in patients of acute corrosive injury on feeding jejunostomy**
Dr Hasmukh B Vora¹, Dr Premal R Desai², Dr Maulik S Bhadania³, Dr Mayank S. Sharma⁴, Dr Devendra Talera⁵.....37
- * **Misoprostol in the Management of Missed Abortion**
Dr Darshan J. Shah*, Dr Babulal S. Patel**, Dr Akshay C. Shah***, Dr Shashwat K. Jani****,
Dr Kairavi D. Yagnik*****43
- * **Co-Relation of Echocardiographic Findings with Severity of Chronic Obstructive Pulmonary Disease**
Dr. Hetal B. Chauhan*, Dr. Kanaiya Patel**, Dr. Daxesh Bamaniya***, Dr. Kemil Kania****47
- * **"Role Of Elastography In Thyroid Nodules And It's Histopathological Correlation ."**
Dr. Sahil N Shah*, Dr Sachin K Patel**.....52

I.M.A. G.S.B. NEWS BULLETIN (Gujarat Medical Journal)

Vol. : 15

AUGUST-2020

Issue : 08

REVIEW ARTICLES

* Pursuit of Happiness

Dr. Sudhir V. Shah*, Dr. Heli S. Shah**, Dr. Chetsi S. Shah***58

CURRENT TOPIC

* Common Mental Health Problems During COVID -19 Pandemic

Dr. Himanshu Desai.....65

CASE REPORT

* An Unusual Presentation of Desquamation at Birth

Dr Chitra Prakashkar*, Dr Nirali Sanghvi**.....68

* Low Carinal Tumor & Ventilatory Management : An Anesthetic Challenge

Dr. Shakuntala Jignesh Goswami*, Dr. Bharat Maheshwari**, Dr. Monika***, Dr. S. Sai Raghavendran****
Dr. Meghna Chandubhai Savaliya*****, Dr. Shaikh Khalid Musharraf*****.....70

* Stiff Leg Syndrome : A Case Report

Dr. Kusum K Sikariya*, Dr. Akanksha Jain*, Dr. Shalin D Shah**, Dr. Bipin Bhimani***, Dr. Sudhir V Shah****.....72

* Mandatory Submission Form.....74

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Original Articles

Clinical analysis of Clinically Significant Macular Edema (CSME) by Slitlamp Biomicroscopy with +90D lens, Optical Coherence Tomography (OCT) and Fundus Fluorescein Angiography (FFA) among patients of diabetes mellitus - cross sectional observational study.

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Keywords: Clinically Significant Macular Edema, Optical Coherence Tomography, Fundus Fluorescein Angiography.

ABSTRACT

Introduction : Diabetic Retinopathy is a major cause of blindness in the world. Proper and affordable diagnosis of Clinically Significant Macular Edema (CSME) is very much important for early detection and treatment of this kind of vision loss. Slitlamp biomicroscopy with +90D lens (SLB), Optical Coherence Tomography (OCT) and Fundus Fluorescence (FFA) are the available methods for detection of CSME. Clinical evaluation of CSME by all these methods is very much important to know their reliability, repeatability and affordability. **Aim :** To analyse findings of slit lamp biomicroscopy with 90D lens, Optical Coherence Tomography and Fundus Fluorescein Angiography in patient of diabetes with CSME. **Methods :** 33 eyes of 25 patients were analysed for findings of CSME by slitlamp biomicroscopy with +90D lens, Optical Coherence Tomography and Fundus Fluorescence Angiography after general ophthalmic examination. **Results :** CME was found better on OCT (27%) in comparison to SLB (9%) and FFA(18%). ERM (9%) and SRF(18%) was found only on OCT. Hard exudates were found better and equally on OCT and biomicroscopy(85%) compared to FFA(18%). DRT was found by biomicroscopy(88%), OCT(100%), FFA(85%). **Conclusion :** OCT helps in better anatomical characterization of CSME and therefore more relevant while planning management strategies.

INTRODUCTION

A major cause of blindness in working class is Diabetic Retinopathy. According to the World Health Organization, India will become one of the major hubs of Diabetic population during the next two decades.¹ Diabetic eye disease is a leading cause of vision loss in person aged 20 to 74years of which retinopathy is most important.² From 1980 to 2014, worldwide age-standardised adult diabetes prevalence increased from 4.3% (95% CrI 2.4-7.0) to 9.0% (7.2-11.1) in men and from 5.0% (2.9-7.9) to 7.9% (6.4-9.7) in women; the posterior probabilities that these were true increases were 0.994 and 0.954, respectively. Over these years, crude adult prevalence increased from 3.6% (2.0-5.9) to 8.8% (7.0-10.8) in men, and from 4.7% (2.7-7.4) to 8.2% (6.6-9.9) in women.³ Indirect funduscopy was carried out by an experienced consultant ophthalmologist using slit-lamp biomicroscopy with 78 D lens for the posterior pole and a superfield lens for the periphery. Diabetic retinopathy stage was classified according to the Early Treatment Diabetic Retinopathy Study (ETDRS) criteria as no diabetic retinopathy (no DR), mild nonproliferative DR (NPDR), moderate NPDR, severe NPDR, proliferative DR (PDR) with new vessels at

the disc (NVD), PDR with new vessels elsewhere in the retina (NVE), or advanced PDR with vitreous hemorrhage, fibrous tissue, or recent retinal detachment.⁴ An important diagnostic tool of DR is fluorescein angiography.⁵ The drawbacks of this procedure are venipuncture, anaphylaxis and death related to contrast injection, even though rare. In addition to this, the technique is expensive and requires up to 10 minute for framing acquisition making it time consuming. However it is considered the gold standard in DR analysis.⁶ OCT provides in vivo cross-sectional information of macular structure with micrometre resolution without requiring physical contact with the patient. The 'non-contact' feature makes the technique very useful when examining children and noncompliant patients. Optical Coherence Tomography helps in identifying macular edema which is the most common complication of Diabetic Retinopathy as well as epiretinal membrane, tractional retinal detachment to name a few.^{7,8} Present study was done to do clinical analysis of CSME by these three different methods keeping in mind the unpredictable and continuous evolution of DR recent past, aggravation, vision loss and to prevent serious complications of

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disease in diabetics which adds to the burden of social economic status of the country through increased morbidities and deteriorating quality of life.

MATERIALS AND METHODOLOGY

Diabetic patients coming to Ophthalmology OPD of our hospital were screened for duration of 1 year (from July 2018 to June 2019). Detailed history and examination viz. visual acuity by ETDRS chart, refraction & correction, Best corrected visual acuity, anterior segment examination by Slit lamp biomicroscopy, Intra ocular pressure measurement by Applanation tonometry, Fundus examination with 90D lenses, Fundus Fluorescein Angiography (FFA), Optical Coherence Tomography (OCT) and systemic evaluation were done.

SELECTION CRITERIA

INCLUSION CRITERIA

- Patient giving written and informed consent.
- All adult patients.
- Diabetic patient diagnosed having CSME.

EXCLUSION CRITERIA

- Patients not giving written and informed consent.
- Patient having pre-existing retinopathy other than diabetic retinopathy.
- Patient with any anterior or posterior segment abnormality causing difficulty in visualisation of fundus.
- Patient having allergy to Fluorescein dye.

CONSENT

Participant's consent aged >18 years.

EVALUATION OF PARAMETERS:

➤ Methods of collecting data

- Study as approved by Institutional Review Board (IRB).
- Participants information sheet (PIS) regarding details of study were prepared in English and Gujarati languages. PIS was given to the participants and they were explained about the type and purpose of study according to their concerned language. After their consent, they were enrolled in study.
- Patient's rights for the participation in the study were safeguarded. Participation in the study was voluntary and at any point, they were free to go away, without giving reason, without any loss to medical care.
- A detailed history of each patient obtained from either the patient or relative was taken as per the attached performa. Following protocols were undertaken in each case:

The history included- Name, Age, Gender, Locality (urban/rural), General vital examination

OPHTHALMIC EXAMINATION

- Distance visual acuity of each eye was taken by ETDRS chart and after that best corrected visual acuity and pin hole vision will be taken.
- General ophthalmic examination of eyebrow, eyelid, conjunctiva, cornea, sclera, anterior chamber, iris, pupil and lens was done by slitlamp biomicroscopy. Intraocular pressure was measured by Goldmann applanation tonometry.
- Patient's pupil was dilated with tropicamide+ phenylephrine eyedrops. Punctal occlusion was explained and done to minimize side effects.
- Slit lamp biomicroscopy was done using +90D Volk lens and findings were noted on CRF.
- Both eyes were selected for analysis of macular region by TOPCON optical coherence tomography 3D OCT-1 MAESTRO having software version 8.42 and findings were noted on CRF.
- Patient will be given subcutaneous test dose of 0.05 ml of sodium fluorescein. 2 ml 20% Sodium fluorescein dye will be injected through antecubital vein and FFA was done using TOPCON RETINAL CAMERA TRC-50DX having software version IMAGE net R4, CAMERA MODEL Nikon D80 SLR camera 10 megapixels | 2.5" screen | APS-C sensor and CAMERA RESOLUTION max 3872 x 2592. Finding of FFA was noted on CRF.

ANALYSIS OF CSME :

➤ Analysis of CSME by slitlamp biomicroscopy with +90D lens was recorded as presence or absence of pathology in macular region shown as below

- (1) Diffuse retinal thickening (DRT), which is seen as altered or absent foveal reflex associated with presence or absence of dot hemorrhages and hard exudates in surrounding area.
- (2) Cystoid macular edema (CME), which is seen as flower petal appearance in macular region.
- (3) Epiretinal Membrane (ERM), which is fibrous membrane formation over Internal Limiting Membrane.
- (4) Vitreomacular Traction (VMT), which is seen as taut elevated retinal layers on binocular vision.
- (5) Sub retinal fluid (SRF).

➤ All OCT scans were performed through a dilated pupil and the macula was scanned.

These various patterns of DME were scored based on their unique appearance on

- (1) Diffuse retinal thickening (DRT) as increased retinal thickness (defined as greater than 200µm) with reduced intraretinal reflectivity and expanded areas

of lower reflectivity, especially in the outer retinal layers greater than 200 μm in width

- (2) Cystoid macular edema (CME) was identified by the localization of intraretinal cystoid-like spaces that appeared as round or oval areas of low reflectivity with highly reflective septa separating the cystoid-like cavities
- (3) Epiretinal Membrane (ERM) without retinal detachment was defined as a highly reflective signal arising from the inner retinal surface and extending towards the optic nerve or peripherally.
- (4) Sub Retinal Fluid (SRF) was defined as an accumulation of sub retinal fluid (which appeared dark) beneath a highly reflective and elevation, resembling a dome, of the detached retina. The identification of the highly reflective posterior border of detached retina distinguished subretinal from intraretinal fluid.
- (5) Vitreomacular Traction (VMT), defined as a peak-shaped detachment of the retina.
- (6) Other than this presence or absence of dot hemorrhages and hard exudates were also noted.

➤ Finding of FFA were noted as leakage of dye in central Foveal avascular zone and the as per appearance of it.

- (1) Diffuse Retinal Thickening (DRT), which is seen as the accumulation of fluorescein in the retina or choroid. At the beginning of the angiogram, the fluid in the space contains no fluorescein and is not visible. As fluorescein leaks into the space, the thickening appear distinct.
- (2) Hard Exudates, which is easily seen on fundus photography but hard to appreciate in FFA. It is see as area of hyperfluorescence near macula arranged in circular manner.
- (3) Cystoid Macular Edema (CME), which is seen as well defined area of hyperfluorescence in macular area in late photograph of FFA.

OBSERVATION

All 33 eyes of 25 patients enrolled in the study were studied. From demography data to general examination and ophthalmic examination including fundus findings were assessed.

CONCLUSION

From the given set of samples detecting 7 items on these three tests, OCT is best method to detect all findings. SLB is equally effective as OCT in detecting Hard exudates. These all observations are based on average method. (Percentage calculation)

Total number of samples = 33

Expected result in numbers = 33 (Assuming that BIOMICROSCOPY and OCT and FFA proves to be perfect.

Fig. I. Gender distribution among patients having CSME shows that out of 25 Patients 15 were male and 10 were female. This Male to Female proportion can be because of low sample size.

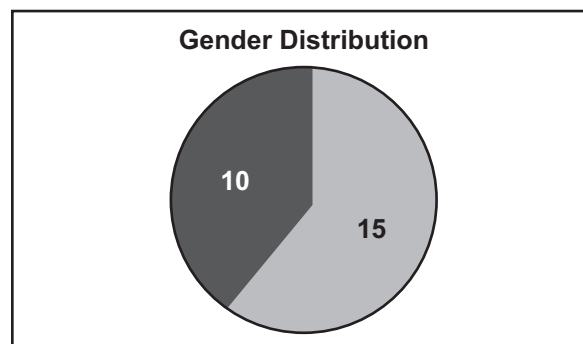


Fig. II. Among 25 patients having CSME, 8 Patients had bilateral CSME while 17 patients had unilateral CSME.

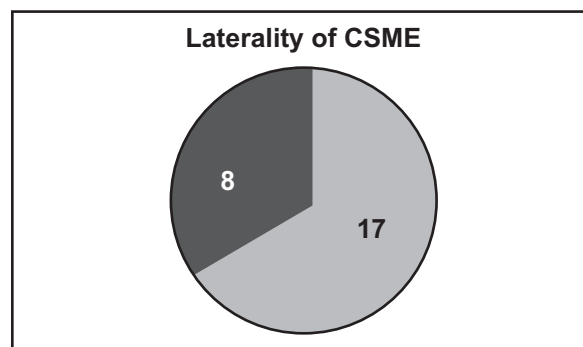


Fig. III. As per demographic data shown above maximum number of patients having CSME were having diabetes for duration of 5-10 years and 10-15 years with 9 patients in each group. 4 patients were having duration >20 years, 2 were having 16-20 years and 1 was having duration <5 years. This distribution is not clinically significant because of low sample size.

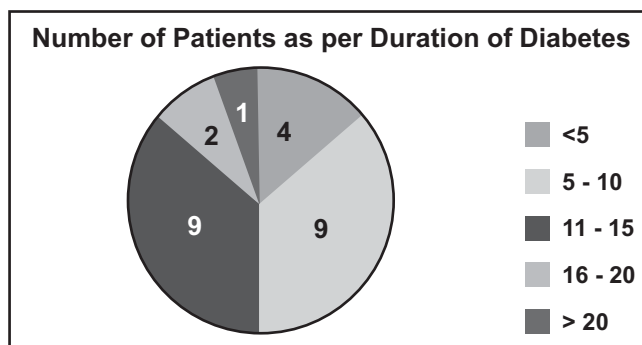


Fig. IV. As per demographic data shown above maximum number of patients having CSME were from age group 65-70 years and >70 years with 8 patients in each, followed by 5 patients in age group 60-65 years, 2 patients in age group 50-55 years and 1 patient in age group 55-60 years and <50 years each. This distribution is not clinically significant because of low sample size.

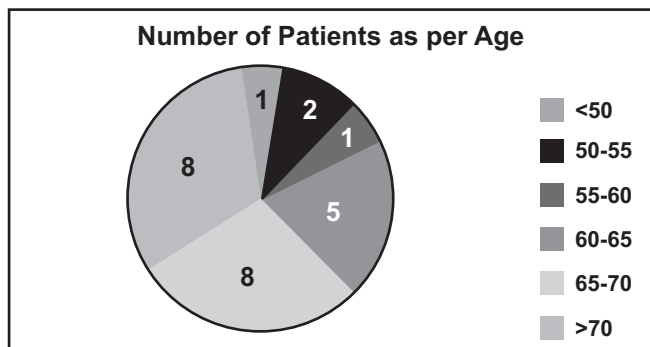


Table I : P value of different fundus findings.

Fundus Findings	Number of eyes having positive findings			P value
	SLB	OCT	FFA	
DRT	29	33	28	0.0768
Dot hemorrhages	7	10	-	0.3984
Hard Exudates	28	28	6	<0.0001
CME	3	9	6	0.1599
VMT	2	5	-	0.2304

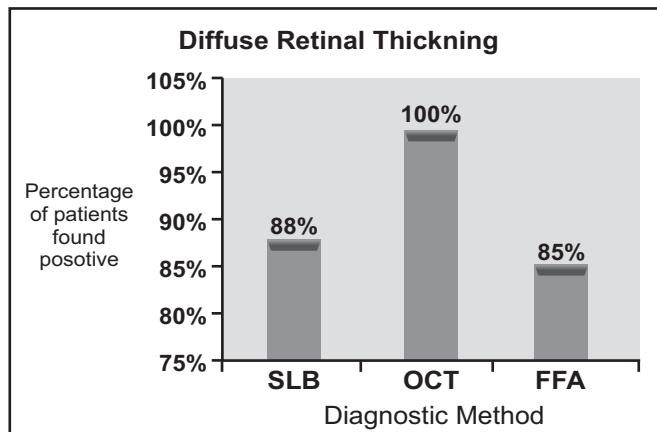
*P value is statistically significant

All P value is calculated by chi square test

Table II : Number of positive fundus findings by all three methods

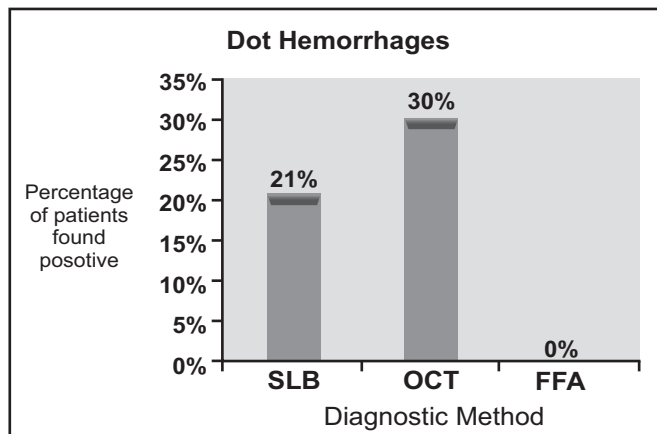
	SLB	OCT	FFA
DRT	29	33	28
Dot Hemorrhages	7	10	0
Hard exudates	28	28	6
CME	3	9	6
ERM	0	3	0
VMT	2	5	0
SRF	0	6	0

Fig. V. Result : By statistical analysis OCT proved the best among three but difference between these methods is statistically insignificant.



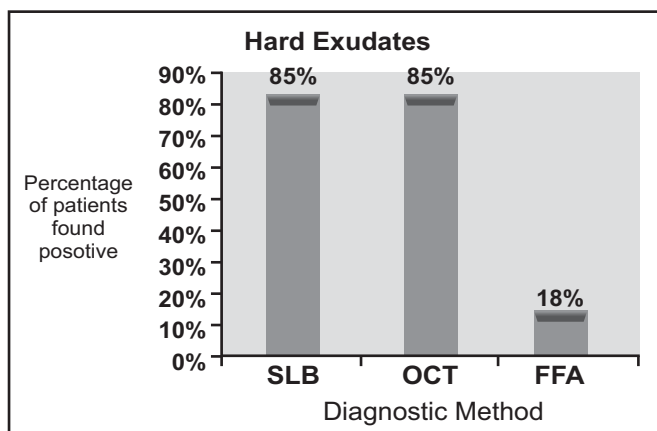
Inference : SLB, OCT and FFA- any method can be adopted.

Fig. VI. Result : By SLB, 21% of the total observations proved to be Valid, by OCT 30% and by FFA 0%.



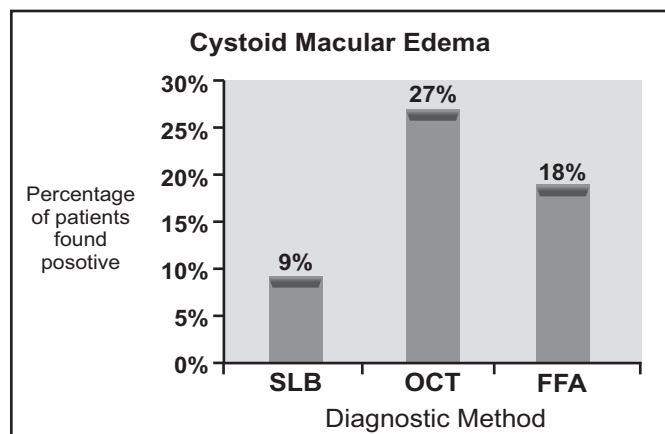
Inference : OCT is found to be more perfect compared to SLB and FFA.

Fig VII Result : By SLB, 85% of the total observations proved to beValid, by OCT 85% and by FFA 18%.



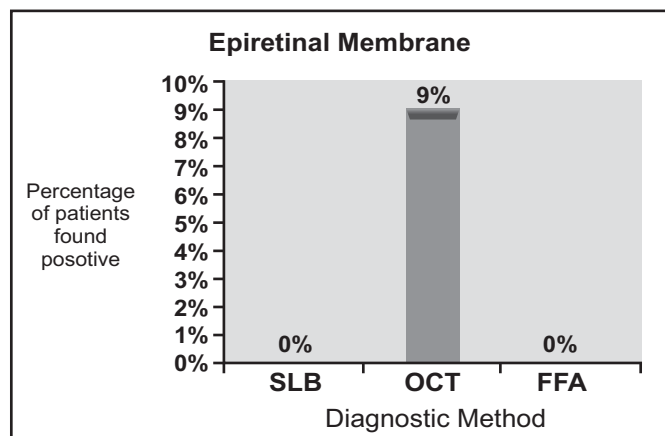
Inference : SLB and OCT is found equally effective compared to FFA. The difference between these methods is statistically significant.

Fig VIII Result: By SLB 9%, by OCT 27% and by FFA 18% of the total observations proved to be Valid.



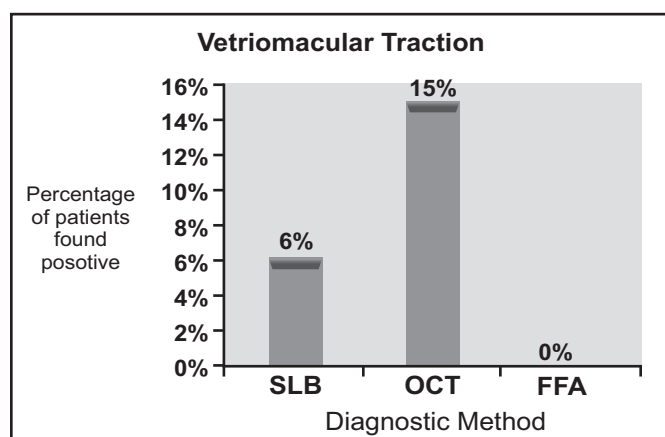
Inference : OCT is found to be more perfect compared to SLB and FFA. OCT can be adopted for CME.

Fig. IX. Result : By SLB 0%, by OCT 9% and by FFA 0% of the total observations proved to be Valid.



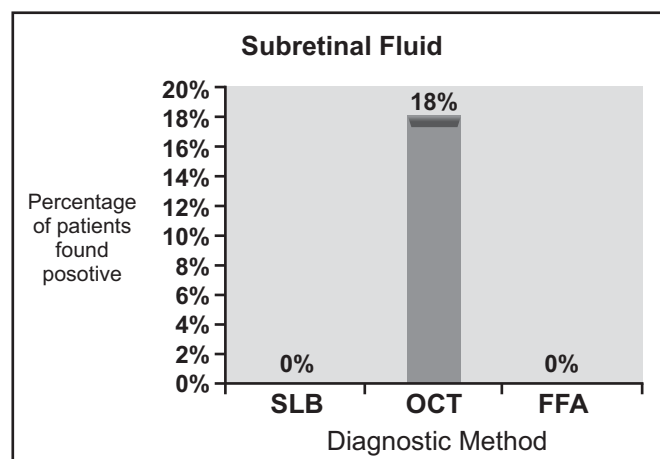
Inference : OCT is found to be more perfect compared to SLB and FFA. OCT can be adopted for ERM.

Fig. X. Result : By SLB 6%, by OCT 15% and by FFA 0% of the total observations proved to be Valid.



Inference : OCT is found to be more perfect compared to SLB and FFA. OCT method can be adopted for VMT.

Fig. XI. Result : By SLB 0%, by OCT 18% and by FFA 0% of the total observations proved to be Valid.



Inference : OCT is found to be more perfect compared to SLB and FFA. OCT method can be adopted for ERM.

DISCUSSION

Yang et al⁹ have suggested that OCT may be more sensitive than a clinical examination in assessing diabetic macular edema and is a better tool for documenting changes in macular thickening. OCT-identified diffuse retinal thickening and / or CME was seen in 58% of eyes without CSME in that series. In our series, we found DRT in all the eyes and CME in 27 % with macular edema. Schaudig¹⁰ et al also found similar observations.

In our study we found that out of 25 patients, 15 were male and 10 were female (Fig I); 17 were having unilateral CSME while 8 were having bilateral CSME (Fig II). Maximum number of patients having CSME were having diabetes for duration of 5-10 years and 10-15 years with 9 patients in each group. 4 patients were having duration >20 years, 2 were having 16-20 years and 1 was having duration <5 years (Fig III). maximum number of patients having CSME were from age group 65-70 years and >70 years with 8 patients in each, followed by 5 patients in age group 60-65 years, 2 patients in age group 50-55 years and 1 patient in age group 55-60 years and <50 years each (Fig IV).

Structural changes in OCT in our series correlate with other data from literature. Otani¹¹ et al found DRT in 88%, CME in 47% and SRF in 15% of eyes with CSME. Kim¹² et al found DRT in 97%, CME in 55%, SRF in 7%, VMT in 13% of eyes with CSME. Ozdek¹³ et al had reported DRT in 66%, CME in 16% and SRF in 10% of eyes with diabetic macular edema. In our study, we found DRT in 100%, CME in 27%, SRF in 18% and VMT in 15%. Along with this we also found Dot hemorrhages in 30%, Hard exudates in 85% and ERM in 9% patients (Table I).

On comparing OCT, biomicroscopy and FFA, 27% of the eyes had CME on OCT, compared to 9% detected on biomicroscopy and 18% detected on FFA (Fig V). 18% of eyes had SRF with subfoveal detachment on OCT and

was not identified neither on biomicroscopy nor on FFA (Fig VI). 15% of eyes had VMT on OCT compared to 6% on biomicroscopy and no detection on FFA (Fig VII). 9% of eyes had ERM identified by OCT compared to none on biomicroscopy and FFA (Fig VIII). 85% of eyes had hard exudates on OCT and biomicroscopy compared to 18% on FFA (Fig IX). 30% of eyes had dot hemorrhages on OCT compared to 21% on biomicroscopy and no detection on FFA (Fig X). DRT was found positive in 88% eyes by SLB, 100% eyes by OCT and 85% of eyes by FFA (Fig XI) Browning et al¹⁴ had also compared stereoscopic slit lamp examination and OCT in the study of CSME and concluded that stereoscopic slit lamp examination of the macula was less sensitive than OCT for detection of diabetic macular edema. Strom¹⁵ et al had found an agreement of 89% on the exact location and 84% agreement on the exact area of CSME when he compared biomicroscopy with OCT and found the latter to be more superior. Ozdek¹³ et al did comparison of optical coherence tomographic (OCT) features with clinical and fluorescein angiographic (FA) findings in patients with diabetic retinopathy, in which they found that CME was detected with OCT in 15.4% of eyes, 40% of which was not detected with slit-lamp biomicroscopy and 63.3% of which was not evident in FFA.

In our study, 27% of the eyes had CME on OCT, compared to 9% detected on biomicroscopy. Ozdek¹³ et al also found that 40% of CME detected on OCT were not detected by biomicroscopy and 63% were not detected even on fluorescein angiography. OCT is thus a better diagnostic tool to diagnose CME in patients with diabetic retinopathy than biomicroscopy or FFA. In our study, 18% of the eyes had SRF, which could not be detected on biomicroscopy or FFA. Most series have found SRF in 8-12% of eyes with CSME.

In our study we try to do find statistically significant difference between OCT, biomicroscopy and FFA for different fundus findings. We use chi square test to calculate it. For Hard Exudates P Value is <0.0001, which shows there is statistically significant difference between these methods in finding hard exudates and OCT as well as biomicroscopy is superior to FFA for this. P Value for DRT, Dot Hemorrhages, CME and VMT is 0.0768, 0.3984, 0.1599 and 0.2304 respectively, which is >0.05 so clinically insignificant (Table II). However clinical findings shows that OCT is better compared to other two methods for all these fundus findings, especially CME and VMT. So this clinically insignificant P Value can be because of low sample size.

CONCLUSION

We found that OCT is a useful technique for quantitative measurement and helps in better anatomical characterization of CSME than biomicroscopy and FFA, and thereby more relevant while planning management strategies, followup, prognosis and predicting visual outcome.

We found that OCT is better compared with biomicroscopy and FFA to diagnose CME, to detect subretinal fluid with subfoveal detachment and to study the vitreoretinal interface changes like vitreomacular traction & epiretinal membrane.

Though biomicroscopy is economically affordable and considered as gold standard for macular evaluation, as OCT can reproduce and compare the fundus findings, it is considered superior to biomicroscopy for CSME evaluation and follow up.

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Consensus for Management of hyperglycemia for COVID-19 patients**WRITING GROUP:**

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BACKGROUND

The novel corona virus 2019 has been declared as world pandemic by WHO on 11th March 2020 ⁽²⁾. Most people with COVID 19, who have associated co-morbidities like diabetes, hypertension and cardiovascular diseases including heart failure, are significantly associated with worse outcomes. There are many uncertainties regarding the management of diabetes or elevated blood sugars in patients presenting with COVID 19.

The objective of this consensus document is to create a unified approach for diabetes management for use in primary and specialist care; as well as in-patient and out-patient treatment of the COVID-19 affected diabetic patient.

Diabetes and COVID 19: the link

Individuals with diabetes are at increased risk of COVID 19 infection; this risk can be reduced, though not completely eliminated, by good glycaemic control. Patients with diabetes have suboptimal innate immunity in general which makes them more susceptible to getting an infection as well as vulnerable to serious manifestation of any infection. Evolving data also suggest that patients of COVID-19 with diabetes are more often associated with severe or critical disease varying from 14 to 32% in different studies ^(6,9).

The COVID 19 virus gets entry into target cell by binding to angiotensin converting enzyme 2 (ACE 2), that acts as receptor for corona virus spike protein. Corona virus infection reduces the available ACE 2 and propagates inflammation. Acute hyperglycemia is found to upgrade ACE 2 expression which facilitate virus cell entry and chronic hyperglycemia downgrades ACE 2 expression and thereby makes the cell more vulnerable to inflammation. Also expression of ACE 2 on pancreatic beta cells may lead to insulin deficiency and precipitates new onset hyperglycemia as well as complications like diabetes ketoacidosis in people with diabetes ^(3,4,5). Dipeptidyl peptidase 4 (DPP 4) enzyme may be a functional receptor for human corona virus and inhibition

of DPP 4 may be considered as therapeutic target for COVID 19 infection ^(6,7).

MANAGEMENT OF HYPERGLYCEMIA IN COVID 19 PATIENTS**GLYCEMIC TARGETS**

- Non -hospitalized patients: fasting blood sugar 90-120mg/dl and post prandial blood sugar in the range of 140-160mg/dl and HbA1c<7% is good control
- Hospitalized patients: Insulin therapy should be initiated for treatment of persistent hyperglycemia starting at a threshold ≥ 180 mg/dL (10.0 mmol/L). Once insulin therapy is started, a target glucose range of 140–180 mg/dL (7.8–10.0 mmol/L) is recommended for the majority of critically ill patients and noncritically ill patients.

PART 1. Management of hyperglycemia in COVID patient with pre-existing diabetes:

History prior to hospitalization and/or an admission A1C value $\geq 6.5\%$ (48 mmol/mol) suggests that the onset of diabetes preceded hospitalization.

- A. Outpatient management: Asymptomatic or mild symptoms, do not require hospitalization
- B. In patient care or Intensive care unit: COVID 19 patients who need hospitalisation

A. OPD treatment:**MANAGEMENT OF TYPE 1 DIABETES IN COVID 19 PATIENT**

- Define current glycemic control. Intensify the regimen if patient not in glycemia target.
- Look for clinical signs and symptoms of Diabetes Ketoacidosis
- If DKA is present or severe symptoms of COVID 19 infection hospitalisation and treatment as per standard protocol for DKA with IV insulin infusion and proper rehydration is recommended
- If signs and symptoms of DKA are absent and patient is asymptomatic or mild symptoms of COVID 19,

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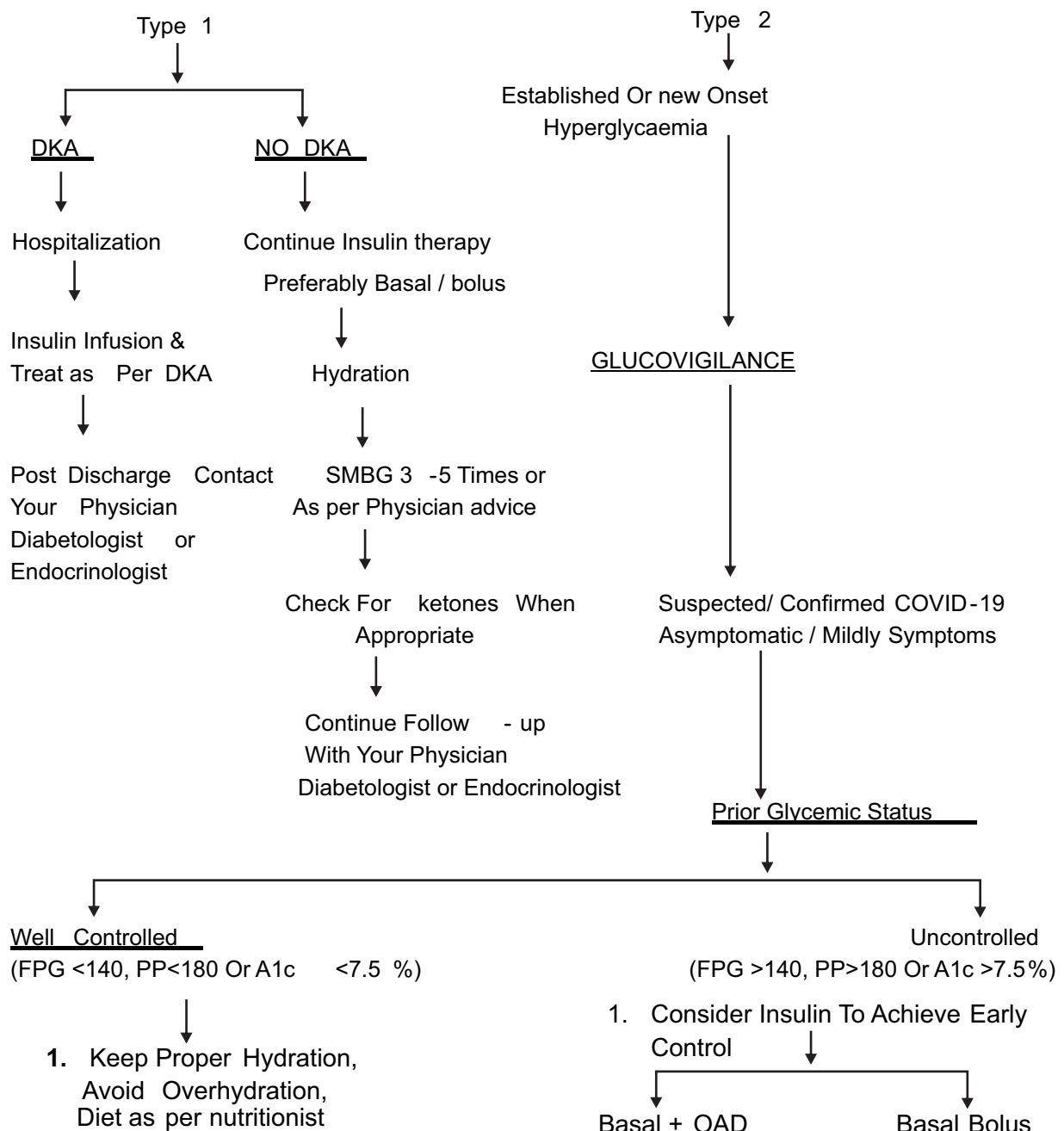
continue insulin preferably basal bolus regimen, ensure proper hydration, increase frequency of sugar monitoring by at least four times a day and keep check on ketones.

- Ensure proper hydration.
- Encourage SMBG practise and good nutrition. Continue OHA as before. If hypoxia or acute kidney injury or volume depletion or DKA develops; stop metformin and SGLT2i, replace GLP1RA with DPP4i. and if hospitalisation is needed switch to insulin.
- Asymptomatic or mild symptom COVID 19 patient with poor glycemia control, consider insulin therapy, preferably basal insulin or basal bolus regimen to achieve good glycemia target.

MANAGEMENT OF TYPE 2 DIABETES IN COVID 19 PATIENT

- Define current glycemic control, patient with FPG < 140mg/dl, PPG < 180mg/dl and HbA1c < 7.5% are considered as good glycemia control
- Asymptomatic or mild symptom COVID 19 Patients with good glycemia control are treated as OPD.

ALGORITHM FOR MANAGEMENT



2. Continue Previous Therapy

Stop Metformin and SGLT2i if Hypoxia / AKI Develop.

recommended.

Hospitalization recommended.

Stop SGLT- 2i*, If s/s Of Volume depletion/DKA. depletion/DKA

Withhold GLP-1a# & Replace with DPP-4i^ DPP-4i^

If GI s/s Or Low appetite.

3. Consider Insulin if Control Deteriorates

4. Monitor Blood sugar at least twice a day (Fasting and Post meal)

Be in Contact with your physician, diabetologist or Endocrinologist.

B. In patient care or Intensive care unit

B1. In patient with no hypoxia and no signs of acute crisis

- In patients with good glycemia control, keep monitoring blood sugar. Ensure good hydration and avoid over hydration. Give diet as per the advise from dietitian. If hypoxia or acute kidney injury or volume depletion or DKA develops stop metformin and SGLT2i, replace GLP1RA with DPP4i Consider basal insulin if needed.
- In patients with uncontrolled Diabetes, stop all OHA and consider basal bolus insulin regimen. Monitor blood sugar and titrate insulin dosage. Avoid sliding scale. If patient develops hypoxia or severe symptoms switch IV insulin infusion.

B2. In patient with hypoxia

- In patients with good oral intake and can be managed by inhalational O2 therapy who do not require intubation, initiate basal bolus regimen. Stop all OHA. Keep aggressive watch on blood sugar preferable 7 times a day and ketones.
- In patients who need intubation and ventilator support IV insulin infusion is mandatory. Target blood sugar 140-180mg/dl. If blood sugar is > 300mg/dl check every hourly and if blood sugar is < 300mg/dl check every two hourly. One may consider CGM when appropriate.

INSULIN THERAPY IN HOSPITALIZED PATIENTS

- Insulin therapy should be initiated for treatment of persistent hyperglycemia starting at a threshold ≥180

2. Stop Metformin and SGLT2i If Hypoxia/ AKI Develop. Hospitalization

Stop SGLT -2i*, if s/s of volume

Withhold GLP -1a# & Replace with

if GI s/s Or Low appetite.

3. Monitor Sugar at least 4 times a day.

(Fasting, prelaunch, predinner and bed time)

4. Check Acetone.

mg/dL (10.0 mmol/L). Once insulin therapy is started, a target glucose range of 140–180 mg/dL (7.8–10.0 mmol/L) is recommended for the majority of critically ill patients and noncritically ill patients.

SQ Insulin and Starting dose for Sq Insulin

Basal insulin : Use Insulin glargine (Lantus, Basalog, Basaglar)as the preferred basal insulin to be given once a day generally after checking bedtime blood sugar and calling physician on call with same

Recommended Initial Basal Insulin dosing for patients with diabetes prior to admission:

Diabetic	10 units Glargine	dose to be adjusted by physician / diabetologist daily
Covid-19 with hyperglycemia	Usually will not require	Based on sugar readings and physician/ diabetologist decision

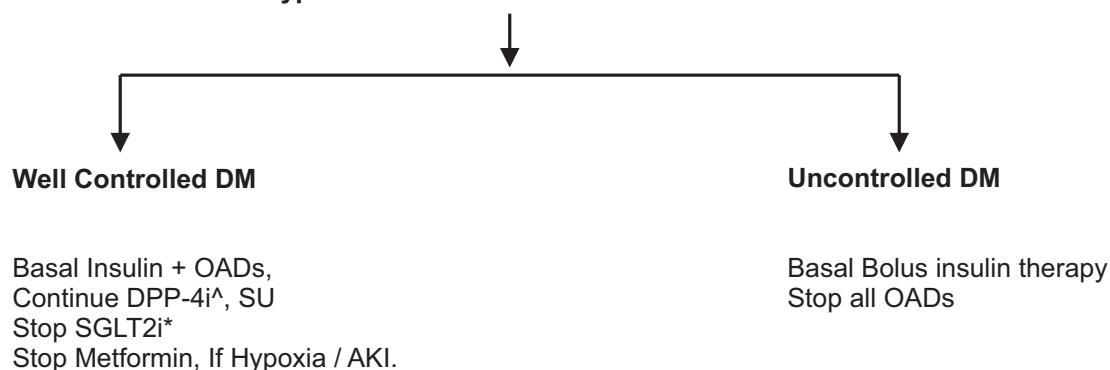
Bolus Insulin : means insulin that is given before meals in patients who are eating or tolerating feeds.

Preferred is insulin lispro or aspart or glulisine (eg., Humalog or Novarapid or Apidra), can also use Regular Insulin (eg., Human Actrapid)

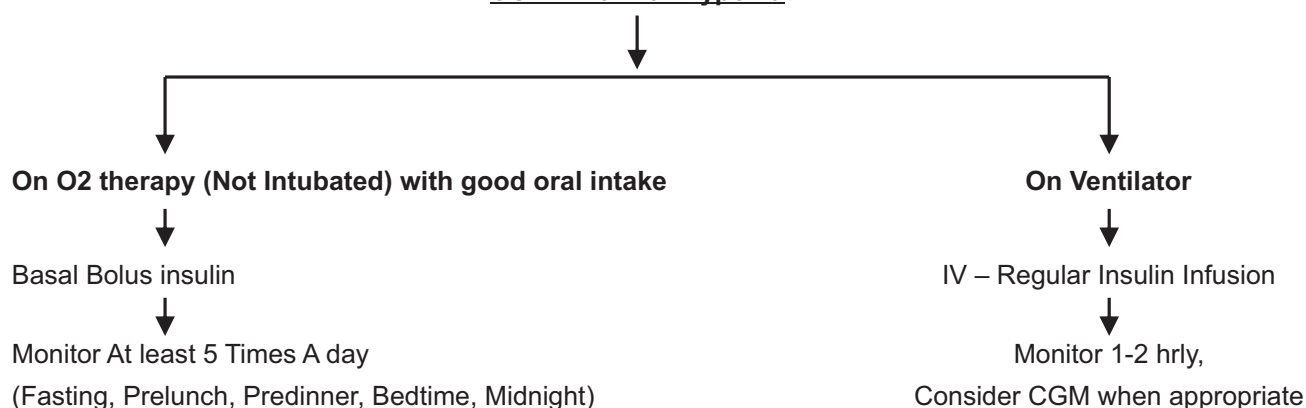
Check sugars at least 4 times (Fasting, Prelunch, Predinner and Bedtime)

Each sugar should be informed to medical officer for approval of insulin dosage.

COVID-19 Patient Requiring hospitalization
No Hypoxia / No s/s of acute crisis Start Insulin



COVID-19 with Hypoxia



SGLT-2i* - Canaglifozin, Dapaglifozin, Empaglifozin , Remoglifozin.

GLP-1a# - Dulaglutide, Liraglutide, Lixisenatide,

DPP-4i^ - Vildagliptin, Sitagliptin, saxagliptin, linagliptin, Teneligliptin, Alogliptin, Evogliptin.

Dosage of Bolus Insulin:

BLOOD SUGAR	Diabetes A1c >=7.5	Diabetes A1c <7.5	Covid Hyperglycemia
141 - 180	2	2	0
181 - 220	5	4	2
221 - 260	6	5	3
161 - 300	8	6	4
301 - 340	10	7	5
341 - 380	12	8	6
381 - 400	14	9	8

Caveats:

If AKI or GFR is < 45, reduce dose by 2 units from each column

If patient is receiving corticosteroids may need to add plus 2 units to each column.

If not eating or feeds not tolerated give insulin post meal as per the sugar level.

If sugars remain persistently above 300 mg/dl then IV insulin infusion is recommended

HYPOGLYCEMIA:

Definitions and management:

- Hypoglycemia: Blood glucose < 70 mg /dl but > 54 mg /dl- hold insulin or medication, and give 15-30 grams of carbohydrates such as 200 ml milk with sugar one spoon, or glucon d in water if patient is awake. Check sugar every 15 minutes till sugar is 100mg/dl or more
- Severe Hypoglycemia: Blood glucose < 54 mg per dl or any blood glucose with symptoms such as confusion, blurry vision, sweating or in severe cases loss of consciousness requiring medical intervention.

Management with **D25 Protocol: TARGET BLOOD SUGAR > 100mg/dl**

SOURCE

1. Hold insulin drip/insulin dose/medication
2. Give D25 IV Dose in ml = $[(100-SUGAR) \times 0.8]$, to simplify
 1. BG 60-70: Give 30ml D25 IV
 2. BG 50-60: Give 40ml D25 IV
 3. BG 40-50: Give 50ml D25 IV
 4. BG 30-40: Give 60ml D25 IV
 5. BG 20-30: Give 80ml D25 IV
 6. BG < 20: Give 100ml D25 IV
3. Repeat BG q15m until BG >70 mg/dL, then Check q30 until BG >100 mg/dL
4. Once BG >100 mg/dL, check BG hourly and restart infusion at 1/2 of the prior rate once BG >140 mg/dL

PART 2 COVID HYPERGLYCEMIA

COVID Hyperglycaemia is defined as plasma blood glucose in hospitalized patient is >140 mg/dL (7.8 mmol/L) and HbA1c is < 6.5%. Treatment is initiated if plasma blood glucose remains ≥ 180 mg/dL persistently on 2 separate occasions.

Blood glucose levels persistently above this level should prompt conservative interventions, such as alterations in diet or changes to medications and or/initiation of insulin and frequent blood sugar monitoring.

If HbA1c is $\geq 6.5\%$, then the patient is having pre-existing diabetes. Management as per pre-existing diabetes.

DOs In COVID-19

1. Proper Hydration.
2. Diet
3. Glucose Monitoring

DON'Ts in COVID-19

1. Avoid Religious fasting.
2. Avoid NSAIDS.
3. Avoid Fluroquinolones.

Diet

1. At least 3 serving of vegetables and 2 serving of fruits, Include pulses in each meal OR as per Dietitian Advise
2. Hospitalized patients-High protein Diet+ More citrus Fruits.
3. Parenteral Feeding (Intubated Patient)

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Original Articles

Myths and beliefs among patients regarding vitiligo in outdoor unit of skin department, tertiary care teaching hospital.

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Keywords : Myths, Beliefs , Rituals, Survey, vitiligo.

ABSTRACT

Introduction : Vitiligo is a depigmentation disorder of skin where the loss of functioning melanocytes causes the appearance of white patches on the skin. Some myths and beliefs regarding vitiligo exist in our Indian society. Some of them are successfully practised. Present study will reveal the hurdles in providing safe and effective treatment. So this study will evaluate the current scenario about myths and beliefs in vitiligo patients. This will help to get a baseline data and in-depth information.

Objectives : The purpose of this study is to assess the myths and belief of the patients regarding vitiligo.

Materials and methods : Across sectional survey type study conducted in tertiary care teaching hospital and face to face interview was undertaken with 100 Vitiligo patients using structured questionnaires. The questionnaires included social-demographic profile and food, cultural and ritual related beliefs.

Results : Total 100 patients were included in study. Majority of patients belongs to age groups of 31-40yr, were females and educated up to secondary school. Considering food belief majority believe that contrast food (virudhaahaar) is the main causative factor, among cultural belief majority were unwilling to marry vitiligo patients and regarding ritual belief vitiligo is result of our sins.

Conclusion : Implementation of educational awareness programmes with counselling is crucially important in order to improve management of vitiligo.

INTRODUCTION

We are living in the modern digital era, as human being, we are able to send rockets to the moon but are still trapped in a web of myths and beliefs. "Myth" usually refers to a story of forgotten or vague origin, basically religious or supernatural in nature, which seeks to explain or rationalize one or more aspects of the world or a society. The study of myth must not and cannot be separated from the study of religion, religious beliefs, or religious rituals¹. Belief is usually defined as a conviction of the truth of a proposition without its verification; therefore, a belief is a subjective mental interpretation derived from perception, contemplation (reasoning), or communication. Belief is always associated with a denial of reality².

Vitiligo is a depigmentation disorder of skin where the loss of functioning melanocytes causes the appearance of white patches on the skin. There are various modalities available for treatment of vitiligo, but because of cultural diversity and belief, these cannot reach patients. This

stigmatic disease forces the patient to approach all the streams of medicine, as well as alternative therapy of non-proven value, which further worsens the situation. At the same time the non-adherence to the treatment reflects poor prognosis, which is misunderstood for lack of response resulting in poor faith in the medications.

This study is planned to evaluate myths and beliefs in vitiligo patients.

MATERIAL AND METHOD

This is a questionnaire based survey type study. The study was started after approval from The Institutional Ethics Committee. Patients coming to vitiligo clinic of dermatology department in a tertiary care hospital are included as participants. Written consent was taken before enrolment in the study. The questionnaire was provided to the participants. A total of 19 questions were prepared in vernacular language regarding the myths and beliefs. Participants enquired in detail regarding the socio-demographic profile like age, education level etc.

The questionnaire was developed to assess the myths

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and beliefs of patients about the disease. It consists of 19 items among them 5 questions are related to food, 9 questions are related to cultural belief and 5 questions related to ritual belief

The data collected were analysed using descriptive statistic.

RESULTS

Total 100 patients were enrolled in the study, demographic characteristics presented in table-1 revealed that majority of the patients belonged to the age group of 31-40 years (31%). Majority were female (66%), and educated up to secondary school (41%).

Table: 1. Socio demographic details

Socio demographic parameters		Number of patients (%), n= 100
Age Group (Years)		
	18-30	27(27%)
	31-40	31(31%)
	41-50	22(22%)
	50<	20(21%)
Gender		
	Male	34(34%)
	Female	66(66%)
Education		
	Illiterate	14(14%)
	Primary	24(24%)
	Secondary	41(41%)
	Higher secondary	8(8%)
	Graduate	11(11%)
	Post graduate	2(2%)

Regarding food related belief 44% participants believe that contrast food causes vitiligo, whereas 35% participants believe that excessive junk food causes vitiligo, 32% participants believe that consumption of citrus food is a cause of Vitiligo. Related to fish and milk, 28% participants believe that having fish and milk together causes vitiligo, whereas 25% participant believe in myths related to white food (table-2).

According to table-3, 42% of the participants from the study population were absolutely unwilling to marry a vitiligo patient whereas 39% participant were believe that vitiligo is not curable. The common belief regarding the cause of the disease was chemical contact (37%). 27% participants believe disease can cause physical and mental weakness. 27% of the participants were unwilling to shake hands with sufferers as they believe this disease

Table: 2. Analysis of belief related to food.

Common belief	Believer	Non believer	Non responder
Use Contrast food	44(44%)	44(44%)	12(12%)
Use of junk food	35(35%)	46(46%)	19(19%)
Use of citrus food	32(32%)	48(48%)	20(20%)
Use of fish and milk	28(28%)	52(52%)	20(20%)
Use of white food	25(25%)	66(66%)	9(9%)

Table: 3. Analysis of cultural belief

Common belief	Believer	Non believer	Non responder
Should not marry with vitiligo patient	42(42%)	45(45%)	13(13%)
Vitiligo is not curable	39(39%)	49(49%)	12(12%)
Vitiligo may due to chemical contact	37(37%)	46(46%)	17(17%)
Vitiligo causes physical and mental weakness	27(27%)	68(68%)	5(5%)
Vitiligo is hereditary	27(27%)	62(62%)	11(11%)
Vitiligo may due to infection	27(27%)	60(60%)	13(13%)
Sunlight can increase vitiligo	27(27%)	67(67%)	6(6%)
Vitiligo may due to use of cosmetics.	27(27%)	57(57%)	16(16%)
Vitiligo is infectious	22(22%)	77(77%)	1(1%)

Table: 4. Analysis of ritual beliefs

Common belief	Believer	Non believer	Non responder
Vitiligo is result of sins	11(11%)	82(82%)	7(7%)
Vitiligo is results of curses, witchcraft or sorcery	9(9%)	78(78%)	13(13%)
Vitiligo patients are unlucky	9(9%)	83(83%)	8(8%)
Vitiligo is results of evil eye	6(6%)	88(88%)	6(6%)

is contagious by touch. Considering cause of vitiligo 27% participants believe that it is due to exposure of excessive sunrays, 27 believe excessive use of cosmetics and 22% believe this disease is infectitious.

Considering ritual belief 11% feel that it is a result of our sins, 9% people believe that the disease is a result of

witchcraft (sorcery) or curse, and 9% people believe that sufferer is unlucky. 6% people of study believe it is a result of evil-eye(table-4).

DISCUSSION

In India, in spite of advanced technology available for vitiligo, it is difficult to treat. Vitiligo is an auto-immune disorder and it occurs at any age group. This disease is associated with many religious and cultural rituals. The patient feels fearful of being out-casted from the family and the society. For that reason they avoid going to hospitals and prefer to treat it by their own traditional ways⁽³⁾. People believe in various myths and belief and also apply different traditional aspects related to health care to treat disease. This makes the patient and their family to seek rituals rather than seeking medical help. The delay in treatment further complicates the condition of the patient.⁽⁴⁾

In our study majority of the patients belonged to the age group of 31-40 years (31%). Majority were female (66%), which correlates with study done by Fawzy KS shows 53.3%⁽⁵⁾. The assessment of educational status revealed that majority of the study population were of the secondary school level of education (41%) which does not match with study done by Abraham shows primary level of education (39%)⁽⁶⁾.

Belief regarding the food are as follow 44% people believes that disease occurs due to taking of contrast food, 35% due to junk food and 32% believes that it may due to use of citrus food ,28% believes that it may due to taking fish and milk simultaneously, 25% sufferer believe that it may due taking of white food, which not correlate with study done by uzma which shows 45% people believe disease occurs due to false food habits⁽⁷⁾.

Regarding cultural belief 22% patients thought that it was caused by an infection whereas Fawzy KS shows 65.3% believe that the disease is infectious, and the patients are hopeless about the disease. They believe that they should not marry a vitiligopatient (42%), disease is not curable (39%). These results do not match with the study done by Fawzy KS⁽⁵⁾ and uzma⁽⁷⁾ as they show 69.14% people believe not to marry a vitiligo patient and 65.6% people believe that disease is not curable.

27% feel that excessive sun exposure can worsen the disease and (27%) people believe that it is hereditary whereas the study done by uzma shows 37% and 22%, respectively,

Our study result shows 37% believe that it may be a result of contact with chemical substances opposite to this study done by Abraham⁶ shows 10% patients believe that

vitiligo may results of chemical exposure, 27% believe the cause to be excessive use of cosmetics and 3% patients believe in study done by Abraham⁶. 22% people believe that vitiligo leads to physical and mental weakness whereas study done by Devinder Prasad shows that 75% of vitiligo patients found their disfigurement moderately or severely intolerable⁽⁸⁾

Other misconceptions included: 11% patients believe that this disease is a result of our own sins⁽⁹⁾, 9% patients believe that it is the result of curse and believe that the sufferers are unlucky. 6% of sufferers believed that the disease is a result of evil-eye such result shows in study done by Uzma (22%). which all reveal the prevalence of cultural myths related to this disease.⁽⁷⁾

The major cause of this disease being difficult to treat is that the patient seeks various modalities for recovery, wasting precious time for treatment. When the patient finally approaches modern medicine, the time period for treatment has lapsed and recovery becomes difficult.

CONCLUSION

- 1) Patients have considerable amount of myths and beliefs regarding vitiligo and its treatment so patients delay to seek proper treatment which worsens the condition from treatable to difficult to treat.
- 2) Implementation of educational awareness programmes with counselling is crucially important in order to improve management of such a disease.

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A Study of Cardiac Disease in Pregnancy and Fetomaternal Outcome

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KEY WORDS : Cardiac disease, RHD, Mode of delivery, Preterm.

ABSTRACT

Background: Pregnancy comes as a temporary complication in patient with a cardiac disease. Prevalence of heart disease in pregnancy varies from 0.3%-3.5%. It is fourth common cause of maternal mortality and one of the most important non obstetrical cause of maternal death. **Objective:** The objective of this study was to find out cause, incidence, management and fetomaternal outcome of pregnancy with cardiac disease. **Material and Methods:** This is a prospective study of 36 cases of pregnancy with cardiac diseases. They were thoroughly investigated to get cause, incidence, management and fetomaternal outcome of pregnancy with cardiac diseases. **Results:** The prevalence of cardiac diseases during the study was 0.29%. RHD is still the major group of heart diseases in pregnancy among which mitral valve diseases is the commonest (53.52%). 60.3% babies are LBW thus prematurity is very common in patient with cardiac disease. **Conclusion:** The results of our study indicate that cardiac diseases forms considerable proposal of medical illness complicating pregnancy.

INTRODUCTION

Pregnancy comes as a temporary complication in the disease process of a patient with a cardiac disease. Prevalence of cardiac disease in pregnancy varies from 0.3%-3.5%. It is the fourth common cause of maternal mortality and one of the most important non obstetrical causes of maternal death. Previously most women with diagnosed heart disease were advised to avoid pregnancy and labour and termination was advised. But in modern obstetrical practice, pregnancy in a patient with heart disease is no longer an unacceptable hazard. Joint management between the obstetrician and the cardiologist has improved the outcome of pregnancy and reduced maternal risks.

Effect of Pregnancy on Patient with Heart Disease :

The Heart which has an organic disease is already in a border line state. The pregnancy may lead it to in a state of failure. Though the heart failure may occur at any time during pregnancy but maximum changes are at about seventh or eighth month and during labour.

Effect of Heart Disease on Pregnancy : Pregnancy outcome is compromised by the presence of heart disease. Previously the perinatal mortality for pregnant patients was as high 20%. But due to adequate prenatal care, prolonged hospitalization and intensive care when decompensation occurs, there is an improvement in the fetal outcome nowadays. But still there are a few

Cardiovascular Physiology during Pregnancy and Labour

Parameter	Percentage	Change
Cardiac output	40-50%	Increase
Stroke volume	30%	Increase
Heart rate	15-25%	Increase
Intravascular volume	45%	Increase
Systemic vascular resistance	20%	Decrease
Systolic BP		Minimal
Diastolic BP	20%	Decrease at mid -pregnancy
CVP		Unchanged
O ₂ Consumption	30-40%	Increase

complication like IUGR, IUD, abortion and congenital anomalies are increased in a pregnant patient presenting with heart disease.

AIMS AND OBJECTIVE

- 1) To find out incidence of various cardiac lesion and presentations of heart diseases in pregnant women.
- 2) To find out causes and management of pregnancy with a heart diseases.
- 3) To assess maternal and fetal outcome and prognosis.

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MATERIAL AND METHODS

This study is an analysis of maternal and fetal outcome in 36 cases of cardiac disease out of 12,152 total deliveries carried out between the period of September 2017 – October 2018 in department of Obstetrics and Gynecology, Civil hospital, B.J. medical college, Ahmedabad.

Inclusion Criteria

- Patient who were non case of RHD or diagnosed during present pregnancy
- Patient with congenital heart disease
- Patient with ischemic heart disease
- Patient with prosthetic heart valves and surgically corrected heart disease

OBSERVATION

Table 1: Emergency Vs booked cases

Total	Emergency	Booked
36(100%)	23(64.78%)	13(35.22%)

Table 2: Etiological Distribution

Type of Cardiac Disease	No of Cases	Percentage (%)
Rheumatic Heart Disease	19	53.5
Cardiomyopathy	5	15.1
Atrial Septal Defects	3	12.6
Mitral Valve Prolapse	2	4.22
Bicuspid Aortic Valves	3	12.6
Pulmonary Arterial Hypertension	2	4.2
Tetralogy of Fallot	1	1.41
Ventricular Septal Defects	1	1.41
	36	100

Table 3: Outcome of Pregnancy

Outcome	No of Patient	Percentage (%)
Full Term	23	66.2
Pre Term	13	29.57
MTP	1	1.41
Spontaneous Abortion	1	1.41
IUD	1	1.41

Table 4: Mode of Deliveries

Mode of Delivery	No of Patient	Percentage (%)
Normal Vaginal Delivery	18	52.94
LSCS	12	35.3
Forceps Assisted Vaginal	2	5.88
Ventouse Assisted Vaginal	2	5.88

Table 5: Indication of LSCS

Indication	No of Patient
Malpresentation	3
Fetal Distress	4
Cardiac	3
IUGR	1
Prev CS	1
Total	12

Table 6: Fetal Outcome

Outcome	Number	Percentage (%)
Healthy	26	77.9
Intra-Uterine Growth Restriction	4	10.3
Intra-Uterine Death	1	2.94
Neonatal Death	2	4.41
Low Birth Weight	20	60.3
Neonatal Intensive Care Unit Admission	5	11.76
Total		100

DISCUSSION

Total 36 cases of pregnancy with cardiac disease out of 12,152 deliveries registered. The prevalence of cardiac disease during the study was 0.29% (2.9 cases per 100 deliveries). The incidence of registered patient is 35.22%

and emergency cases referred from outside where 64.78%. Thus being a tertiary care center most of the cases where referred from outside. RHD is still the major group of heart diseases in a pregnancy among which mitral valve diseases is the commonest (53.52%). It is important to grade the patients under NYHA classification for proper management and conduct, most of them fall under Grade I (20 patients) and Grade II (11 patients). 53% patients had normal vaginal delivery and 35.3% had LSCS while 11% underwent instrumental vaginal deliveries. 77.9% of babies were healthy. 60.3% were LBW. 30% of patients had preterm deliveries. Thus prematurity is common in patient with cardiac disease. Barrier contraception should be the ideal choice for these patients but modern CuT-380 A can also be used when benefits outweigh risks as stated by WHO.

CONCLUSION

The results of our study indicate that cardiac disease forms a considerable proposal of medical illness complicating pregnancy. Cardiac disease patients problems both to the obstetrician and as well as to the

physician, cardiologist and to the neonatologist. The management includes intensive care throughout pregnancy and also during labour and postpartum. The newer investigation like 2D-Echo and TEE are becoming easily accessible for the patients and also are better intensive care unit services available so that management of the patient with cardiac disease with pregnancy should not be big problem in future.

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Only home kitchen feeds v/s commercial nutritional supplementation in patients of acute corrosive injury on feeding jejunostomy

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Keywords : Acute Corrosive injury, Commercial Feeds, Home Feeds, feeding jejunostomy

ABSTRACT

Introduction : In present study, we present our experience of patients with corrosive injury on feeding jejunostomy enteral nutrition. We aimed to compare between exclusive home kitchen feeds and commercial feeds in maintaining nutrition in patients on enteral nutrition by feeding jejunostomy.

Materials & Methods : A case control study (50 subjects each) was conducted on patients on enteral nutrition by feeding jejunostomy. Cases included patients on feeding jejunostomy home enteral nutrition based on exclusively home kitchen feeds while controls include patients with jejunostomy feeding based on commercial protein/readymade powder supplements.

Results : On follow up, it was observed that mean hemoglobin and albumin levels of cases i.e. subjects on home based feed was significantly higher as compared to controls i.e. subjects on commercial feeds. Also, mean increase in weight gain was significantly more in cases as compared to controls at each follow up. Mean monthly cost of home based feeds was significantly lower as compared to commercial feeds (Rs. 900/- vs 16,200/-; $p < 0.05$).

Conclusion : According to the present study, there is a clear advantage of home based feeds over commercial feeds for enteral nutrition in corrosive injury. Home-made formulas also offer economic advantage over commercial feeds which places less financial burden to the concerned families and society.

INTRODUCTION

Acute corrosive poisonings may cause serious chemical injuries of the upper gastrointestinal tract, from the mouth to the small intestine. This type of poisoning occurs as a result of accidental or intentional ingestion of corrosive substances and are encountered in subjects of different ages. Contrary to corrosive poisonings in children, which are accidental in the majority of cases, poisonings in adults are with attempted or suicidal intent in 90% of the cases.¹ This type of poisoning result in serious acute complications like esophageal/gastric necrosis and perforation, metabolic acidosis, acute kidney injury, tracheal necrosis, acute respiratory distress syndrome, laryngeal edema and subsequently tracheoesophageal fistula, esophageal stricture or pyloric stenosis etc which causes significant morbidity, mortality and socioeconomical burden to family and society.

Severity of the injury depends on several factors: nature, quantity and concentration of the corrosive substance, duration of exposure, act of swallowing, presence of food in stomach, gastroesophageal reflux, various previous

pathologic conditions in the upper gastrointestinal tract and other existing morbid condition of the patient.² Acids causes coagulation necrosis and alkali causes penetrating liquefaction necrosis which causes reversible or irreversible gastrointestinal damage.

Injured mucosa, submucosa and muscular layer are regenerating poorly due to the surrounding inflammation, necrosis, microvascular thrombosis and complications. Resulting fibrosis, adhesions or circular stenosis greatly impair the upper gastrointestinal function such as impaired peristaltic and passage which leads to dysphasia or gastric outlet obstruction causing malnutrition, macro and micronutrient deficiency, weight loss, cachexia and other complications.³ These patients are under hypercatabolic state and negative nitrogen balance. Effects of the nutrition substitution in these patients reduces the risk of infection, stimulation and facilitation of healing of injuries. Therefore, early nutritional support is of great importance for the optimum treatment and outcome of these patients.^{4,5} Many of these patients comes from lower economic class so any long-

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Table 1. Home based Feeds

Home Kitchen Feed	Energy	Protein	Cost	Cost per 1500 kcal
50 gm - Gram Flour	194 kcal	9.5 gm	5 Rs.	
50 gm - Ghee	438 kcal	0.05 gm	8 Rs.	
50 gm - Jaggery	190 kcal	0.08 gm	2 Rs.	
Total 150 gm	Total 822 kcal	9.63 gm per day	15 Rs. per day	30 35 Rs. per day

Table - 2. Commercial feeds

Trade Names	Energy / 10 gms	Protein	Cost	Cost per serving	Cost per kcal	Cost per 1500 kcal
Nutrilite	40 kcal	4.1 gm	Rs. 1664	41 Rs. per 40 kcal	1 Rs.	1500 Rs. Approx.
Laminogi	30 kcal	2.2 gm	Rs. 500	12.50 Rs. per kcal	40 Pais	600 Rs. Approx.
Essential HP	36 kcal	4.8 gm	Rs. 763	19 Rs. per kcal	50 Paise	750 Rs. Approx.
Fresubin	44 kcal	1.65 gm	Rs. 499	10 Rs. per kcal	36 Paise	540 Rs. Approx.

term nutritional support through feeding jejunostomy has to be economically balanced and nutritionally optimum. In this study, we present our experience of patients on feeding jejunostomy enteral nutrition and comparison between exclusive home kitchen feeds and commercial feeds in maintaining nutrition.

MATERIALS AND METHODS

A case control study (50 subjects each) was conducted in the Department of Surgical Gastroenterology including patients of corrosive injury on enteral nutrition by feeding jejunostomy who are on OPD follow up during the study period. Cases included patients on feeding jejunostomy enteral nutrition based on exclusively homemade kitchen feeds while controls include patients on feeding jejunostomy enteral nutrition based on commercial protein/readymade supplements.

Home kitchen feeds (Table 1) consists of commonly used food items that are blenderized and given as tube feeding. This was made at patient's home by using commonly available economic food items like milk, paneer, wheat, rice, dhal, vegetable, fruits, egg, edible oil, sugar, curd etc.

calculated according to patient requirement. Commercial feeds (Table 2) include commercially available polymeric feeds and pre-digested feeds that are routinely taken used by our patients. Multivitamins and multimineral were supplemented in both the group of patients

All patients have a feeding jejunostomy tube placed stammwhitz el technique using 12 Fr ryles tube. Feeding is administered as infusion over 30 minutes using a feeding bag every 2 hourly. Patient generally receives 8-10 feeds per day. Total calorie of 25-30 kcal/kg and protein of 1.5-2.5 g/kg were given. All patients were monitored on OPD basis every week. Patient's physical examination was done at each visit and body weight monitored. Patient's blood hemoglobin and serum albumin levels were checked at the beginning and in one month.

Statistical analysis was done using SPSS ver. 20 software. Comparisons were made by Student t-test for quantitative data and chi square test for qualitative data.

RESULTS

The mean age of the cases was 37.62 years while that of controls was 31.79 years. Study included 31 males and 69

Table 3. Mean comparison of hemoglobin levels(gm/dl) among cases and controls

Hemoglobin	Group	N	Mean	SD	P-value
Admission	Controls	50	12.25	0.47	<0.05
	Cases	50	11.30	0.68	
1st follow up	Controls	50	12.18	0.49	<0.05
	Cases	50	11.71	0.45	
2nd follow up	Controls	50	12.44	0.45	0.52
	Cases	50	12.50	0.41	
3rd follow up	Controls	50	12.58	0.44	<0.05
	Cases	50	12.96	0.55	
4th follow up	Controls	50	12.67	4.58	<0.05
	Cases	50	13.42	0.46	
5th follow up	Controls	50	12.73	4.62	<0.05
	Cases	50	13.66	0.46	
6th follow up	Controls	50	13.05	0.44	<0.05
	Cases	50	13.82	0.33	
7th follow up	Controls	50	13.48	0.44	0.39
	Cases	50	13.67	0.41	
8th follow up	Controls	50	13.46	0.62	<0.05
	Cases	50	13.98	0.44	
9th follow up	Controls	50	13.31	0.59	<0.05
	Cases	50	14.16	0.49	
10th follow up	Controls	50	12.92	0.53	<0.05
	Cases	50	14.34	0.54	
11th follow up	Controls	50	12.77	0.50	<0.05
	Cases	50	14.49	0.39	
12th follow up	Controls	50	12.48	0.46	<0.05
	Cases	50	14.61	0.28	

females. On follow up, it was observed that mean hemoglobin, mean increase in weight gain and albumin levels of cases i.e. subjects on home based feed was significantly higher as compared to controls i.e. subjects on commercial feeds (Table 3,4&5). Mean monthly cost of home based feeds was significantly lower as compared to commercial feeds (Rs. 900/- vs 16,200/-;p<0.05) (Table 6).

DISCUSSION

Aim of the treatment of acute corrosive intoxications is to prevent perforation and progressive fibrosis, and

esophageal and gastric stenosis. There are different, and often conflicting positions, on the conservative treatment of acute corrosive intoxications in adults. Such treatment mainly consists of anti-secretory treatment, antibiotics and intensive hyper-alimentation, aiming to prevent late post-corrosive intoxication complications.^{6,7} It is considered that nutritional support plays a major role in maintenance of metabolic processes and prevention of severe metabolic complications that could additionally aggravate the condition and impair the treatment.

Table 4. Mean comparison of S. albumin levels(gm/dl) among cases and controls

S. Albumin	Group	N	Mean	SD	P-value
Admission	Controls	50	3.29	0.20	0.39
	Cases	50	3.26	0.18	
1st follow up	Controls	50	3.27	0.19	<0.05
	Cases	50	3.84	0.19	
2nd follow up	Controls	50	3.47	0.19	0.52
	Cases	50	4.25	0.23	
3rd follow up	Controls	50	3.59	0.17	<0.05
	Cases	50	4.34	0.22	
4th follow up	Controls	50	3.72	4.55	<0.05
	Cases	50	4.49	0.21	
5th follow up	Controls	50	3.84	4.56	<0.05
	Cases	50	4.60	0.23	
6th follow up	Controls	50	3.87	0.18	<0.05
	Cases	50	4.80	0.18	
7th follow up	Controls	50	4.00	0.18	<0.05
	Cases	50	4.59	0.55	
8th follow up	Controls	50	4.09	0.20	<0.05
	Cases	50	4.37	0.50	
9th follow up	Controls	50	4.16	0.26	0.16
	Cases	50	4.25	0.40	
10th follow up	Controls	50	3.96	0.30	<0.05
	Cases	50	4.47	0.33	
11th follow up	Controls	50	3.80	0.22	<0.05
	Cases	50	4.71	0.25	
12th follow up	Controls	50	3.66	0.24	<0.05
	Cases	50	5.01	0.14	

Nutritional support has been one of the most controversial procedures in modern medicine for a very longtime. Twenty years ago, Koretz commented on the nutritional support that there are no sufficient evidence-based medical information to conclude on the indications and the need of nutritional support. However, in the past period, position has changed completely, and currently, there is a strong evidence confirming that malnutrition is independent risk factor for higher morbidity, lower quality of life, longer hospital stay, delayed recovery time, higher

hospital costs and higher mortality.^{8,9} In critically ill patients complications increase 4-fold, and mortality 6-fold if the albumin level is below 35 g/L.¹⁰

Artificial nutritional support dates from 1850 year when a gastro-stoma for nutritional support was implanted for the first time in a child with severe esophageal injuries caused by caustic. Actually, discussing the nutrition in acute corrosive intoxications, debates are still ongoing on the most adequate type of artificial support before physiologic feeding per mouth is initiated. DiConstanzo

Table 5. Mean comparison of percentage increase in weight at each follow up among cases and controls

% of Increase in Weight	Group	N	Mean	SD	P-value
1st follow up	Controls	50	0.52	0.25	<0.05
	Cases	50	1.23	0.25	
2nd follow up	Controls	50	0.86	0.85	<0.05
	Cases	50	1.25	0.31	
3rd follow up	Controls	50	1.18	13.41	0.485
	Cases	50	2.48	0.25	
4th follow up	Controls	50	0.69	0.24	<0.05
	Cases	50	1.30	0.33	
5th follow up	Controls	50	0.70	0.19	<0.05
	Cases	50	1.20	0.26	
6th follow up	Controls	50	0.66	0.18	<0.05
	Cases	50	1.20	0.22	
7th follow up	Controls	50	0.49	0.69	<0.05
	Cases	50	1.21	0.13	
8th follow up	Controls	50	0.44	0.81	<0.05
	Cases	50	1.17	0.10	
9th follow up	Controls	50	0.42	0.97	<0.05
	Cases	50	1.05	0.09	
10th follow up	Controls	50	0.41	0.31	<0.05
	Cases	50	1.05	0.08	
11th follow up	Controls	50	0.45	0.46	<0.05
	Cases	50	1.30	0.10	
12th follow up	Controls	50	1.13	0.29	0.136
	Cases	50	1.47	0.31	

Table 6. Mean comparison of monthly cost among cases and controls

Cost per month (Rs/-)	Group	N	Median	IQR	p-value <0.05
	Controls	50	900.0	750.0	
Cases	50	16200.0	18000.0		

followed the patients who suffered acute corrosive intoxications with serious post-corrosive esophageal and gastric complications. He suggested use of intensive hyper-alimentation in the first 7 days after intoxication and did not recommend feeding through mouth during the treatment, as it might lead to additional worsening of the patient's condition.¹¹

Selection of an appropriate formula for Enteral feeding is mostly dependent on the following factors: nutritional needs of the patient, function of the patient's digestive system, location of the tube end (stomach or intestine), food sensitivities and/or lactose intolerance in the patient, and the amounts of sodium, potassium, magnesium and phosphorous available in the formula,

particularity in the patients suffering from renal, hepatic or cardiac-respiratory failure. To our best knowledge, there are no studies in India who compared exclusive home kitchen feeds with commercial feeds in maintaining nutrition in patients on tube feeds. In present study, we thus attempted to fill this void in our literature.

In present study, we demonstrated that mean hemoglobin and albumin levels of subjects on home based feed was significantly higher as compared to commercial feeds through feeding jejunostomy. Also, mean increase in weight gain was significantly more in cases as compared to controls at each followup. Mean monthly cost of home based feeds was significantly lower as compared to commercial feeds.

There are few studies on the cost effectiveness of home-made formulas as compared to the commercial formulas. In a clinical trial on 82 patients with intestinal fistula, home-made formula was compared versus hospital (commercial) formula. The results showed a shorter hospital stay in home EF group with a significantly lower costs and increased quality of life. However, there were no significant difference in duration of EF and the incidence of complications between two groups.¹² Another study reported that implementation of home enteral nutrition improved clinical outcomes and decreased health care costs through weight gain in patients, reduced incidence of infectious complications and the cost of hospitalization.¹³ However, the amount of nutrient intakes from home-made formulas should always be taken into consideration as the amount of some micronutrients may be higher and that of some others be lower than the recommended values. Considering an effective process in or order to standardize home-made formulas and to ensure their nutritional adequacy is essential.

Overall the financial difference between home and commercial feeds (Rs 900/ vs 16,200/ month) and the fact that current nutritional services are not covered by insurance may cause patients and their care-givers prefer using a home-made formulas. However, the issues of safety and ease of preparation of commercial formulas should not be ignored. Additionally, in cases of a need for using such especial formulas as elemental formulas, it is very hard, if not impossible, to make it at home. Overall, the attempts of scientific bodies of clinical nutrition should be towards both improvement of the quality and reduction the costs of commercial formulas and provision guidelines for making efficient home-made formulas. Nonetheless, assuming the cost of one night stay in ICU and the cost of one day use of commercial

formulas, if using these formulas can reduce the length of stay in the ICU and overall length of hospitalization even for one night, they can reduce the cost of treatment and save money.

CONCLUSION

According to the present study, there is a clear advantage of home based feeds over commercial feeds for enteral nutrition through feeding jejunostomy in patients with corrosive injury with regards to nutritional status of the patients. Home-made formulas also offer economic advantage over commercial feeds which places less financial burden to family and society.

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Original Articles

Misoprostol in the Management of Missed Abortion

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KEY WORDS : missed abortion, 1st trimester, 2nd trimester

ABSTRACT:

Objectives: The aim of study is to evaluate the safety, efficacy and reliability of regimen of vaginal misoprost as a medical method of termination in 1st & 2nd trimester missed abortion.

Method :

It is a prospective study carried out in 90 women of missed abortion confirmed by transvaginal ultrasound. After fitness and consent, Misoprostol tablet 200 µgm was inserted vaginally every 4 hours of maximum 5 doses. Time for latent period and induction abortion interval was noted and all patients monitored carefully. Surgical evacuation was performed when complete exclusion was not documented on ultrasound after 24 hours of treatment.

Result :

Complete medical evacuation occurs in 54 women (60%)

Mean induction abortion interval was 13.37 hours

Conclusion :

Misoprost is a safe reasonably effective medical method in inducing complete evacuation in missed abortion.

AIMS AND OBJECTIVES

This is the prospective study of 90 cases of missed abortion terminated by vaginal Misoprostol.

- I. To determine the efficacy and reliability of intravaginal use of Misoprostol
- II. To evaluate safety of Misoprostol.
- III. To analyze results.

INTRODUCTION

Missed abortion is a cause of worry both for the women and gynecologist. The commonly practiced method of managing missed abortion is Dilatation-Evacuation. This increases the chance of incomplete evacuation, cervical trauma and perforation of uterus. However medical method of abortion is now establishing them in clinical practice.

Misoprostol is a prostaglandin E1 analogue that has lower cost, longer shelf life at room temperature and fewer side effects than the E2 analogue. The cervical ripening and uterotonic properties of misoprost make the drug very useful^[1]. Two review articles have collated and summarized evidence-based recommendations for using

Misoprostol for second trimester pregnancy termination, one when involved a live fetus^[2] and the other following intrauterine death^[3]. This study evaluates the efficacy of a regimen of intra vaginal misoprost (6 to 20 weeks) in the resolution of 1st trimester and 2nd trimester missed abortion with a closed cervical os. When complete drug induced expulsion didn't occur within 24 hours, the cervical priming properties of Misoprostol were used to perform a surgical evacuation of uterus.

MATERIALS AND METHODS

Study design: This is the prospective study of 1st and 2nd trimester missed abortion terminated by intravaginal Misoprostol tablet. The study was conducted in Labour Room of Department of Obstetrics and Gynecology at Sheth V.S. General Hospital, Ahmedabad.

Sample size: The study was conducted in group of 90 patients admitted for termination of 1st and 2nd trimester missed pregnancy from July 2016 to January 2018.

After admission detailed history was elicited, clinical examination, vital data, obstetric examination and routine investigations were carried out. An intrauterine missed

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abortion diagnosed and confirmed by pelvic examination and ultrasound(TVS).

Inclusion criteria :

- The interval of their last normal menses didn't exceed 20 week.
- Hemodynamically stable.
- A closed cervical os was found on bimanual examination.
- No clinical sign of anemia or hemoglobin count was > 10 mg/dl.
- Axillary temperature was 37.50C.
- No previous history of inflammatory bowel disease or allergy to Misoprostol.
- No active glaucoma or heart disease
- No history of asthma or hematological disorder.

Misoprostol is a synthetic PGE1 analogue[4,5]. It is water soluble, stable at room temperature, easy to transport, easy to administer and does not require refrigeration in hot climate[5]. Tablet misoprostol rapidly absorbed orally, plasma concentration peak increases rapidly (30min) and also declines rapidly[6] while in intravaginal route, slower increase and lower peak plasma concentration (1-2 hours) but overall exposure to the drug is increased. For that reason, intravaginal route was used.

The treatment was started during the morning with 200 mcgm of misoprost, previously soft in saline, placed in the posterior vaginal fornix, this was repeated every 4 hours for a maximum of five doses if patient aborted earlier further dose was not administrated. All women were monitored for pulse, blood pressure, abdominal cramps, vaginal bleeding and expulsion of products of conception. Completeness of abortion was declared after ultrasound scan.

The spontaneous expulsion time was defined as time taken from insertion of 1st dose of drug to the time when the product of conception was seen in the vagina or protruding through the cervical os.

Patients were given liquid orally during study.

Incomplete abortion cases were managed by evacuation under anesthesia after 24 hour of 1st dose. The side effects such as nausea, vomiting, diarrhea and abdominal cramps requiring medicine were based on nursing observation & individual women's complaints.

All women receive 500mg ampicillin + 500mg cloxacillin IM 8 hourly.

Women were observed for 6 hour after complete abortion or surgical evacuation before discharge from hospital.

Primary outcome: measured was drug inducing complete expulsion of conception products.

Secondary outcome: measures were reported side effects, pain medications and permeability of cervical canal at surgical evacuation. The later was defined as the ability to pass a number 8 Hegar's dilator. Histologically confirmed products were identified in all cases.

OBSERVATION AND DISCUSSION

The study was conducted in group of 90 patients admitted for termination of 1st and 2nd trimester missed pregnancy from July 2016 to 2012.

Out of 90 patients 54 women were aborted completely within 24 hours, 36 patients were having incomplete abortion required emergency check curettage under local anesthesia after 24 hours of 1st dose.

The mean age of the studied population was 24 years (range 20-32) and the average interval from the last menstrual period was 8.2 weeks (6-16).

46 women (51%) were nullipara,
28 women (31%) were para one,
15 women (16%) were para two,
1 woman (1%) was para three.

Table 1 : Distribution of cases according to gestational age

Gestational age in weeks (confirmed by USG)	Number-90	Percentage
6-8	74	82%
9-11	12	14%
12-14	2	2%
>14	2	2%

Mean gestational age was 8 weeks.

Table 2 : Distribution of cases according to induction abortion interval

Induction abortion interval (hours)	Number-54	Percentage
4-8	14	26
8-12	22	41
12-16	8	15
>16	10	18

Mean induction abortion interval is 13.37 hours.

Table 3 : Induction abortion interval according to parity

Parity	Number-54	Mean induction abortion interval (hours)
0	30	14.13
1	18	13.44
2	6	9.33

Significant co relation between induction abortion interval and parity.

Table 4 : Induction abortion interval according to gestational age

Gestational age in weeks	Number	Mean induction abortion interval (hours)
6-8	46	14
9-11	2	12
12-14	4	10
>14	2	6

Sensitivity of the uterus increase to prostaglandin with increasing age of the fetus.

Uterus becomes more responsive to uterotonics agents, and thus to lower doses of Misoprostol, as gestation advances^[4].

Table 5 : Distribution of cases according to total dose of Misoprostol.

Total dose of Misoprostol in mcgm	Number	Percentage
200-400	26	48
600-800	18	33
>800	10	19

Mean dose of Misoprostol is 607 mcgm.

Out of 90 patients 54 women were aborted completely within 24 hours, 36 patients were having incomplete abortion required emergency check curettage under local anesthesia after 24 hours of 1st dose.

Side effects observed: Abdominal pain in 2 cases which resolved with an oral analgesic.

No cases of scar dehiscence/uterine rupture/requiring blood transfusion.

Chapman et al^[7] reported a higher incidence of uterine rupture and hemorrhage with this drug than with mifepristone for women with cesarean scars, where as others have shown it to be relatively safe.^[8,9,10]

- Greziosi et al[13] used 800mcgm per day, maximum two doses ,success rate-60%.
- Bagratee et al[14] showed that complete evacuation rate increased from 73%, 2 days after vaginal misoprost treatment to 89%, 1 week after treatment with Misoprostol.
- Ayres et al[15] 600 mcgm Misoprostol every 4 hourly, max 2 doses, success rate-57%.
- Chawla et al[16]success rate of 93.33%, 200 mcgmevery 8 hourly, max 5 doses.
- Mitchell et al[17] 800 mcgm upto max 2 doses, success rate-92%.
- Sakhare Anil et al[18] 200 mcgm every 4 hourly upto max 5 doses, success rate- 88.08%.

Difference in success rate invarious trials is due to different dose regimen, population, selection criteria, sample size and Ultrasound criteria.

In our study 36 patients required check curettage after Misoprostol treatment. None of them had any complication which could be explained by cervical priming effect of misoprost allowing easy surgical access to uterine cavity.

The patients having complete abortion had cost effective benefit, where as surgical evacuation costs much more depending on the treatment center. Patient was satisfied with the treatment as surgical procedure was most often avoided.

CONCLUSION

Use of intravaginal Misoprostol for 1st and 2nd trimester missed abortion is effective, cheap, safe and convenient alternative to surgical evacuation.

Medical methods avoid complications related to intrauterine instrumentation and saves expenditure on Operation Theater and anesthesia.

Its popularity has also been enhanced because of its easy availability, stability, affordability and more importantly predictable and favorable results.

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Co-Relation of Echocardiographic Findings with Severity of Chronic Obstructive Pulmonary Disease

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Keywords : Echocardiography, electrocardiogram, chronic obstructive pulmonary disease, cor-pulmonale, pulmonary arterial hypertension.

ABSTRACT

Background : Chronic obstructive pulmonary disease is the fourth leading cause of mortality worldwide. It is defined as a disease formally categorized by airflow limitation that is not fully reversible. Patients with chronic obstructive pulmonary disease (COPD) are at increased risk of cardiovascular disease. Electrocardiography (ECG) and echocardiography (ECHO) give valuable information about cardiac disease and prognosis in COPD patients.

Methods : A 50 patients of COPD fulfilling the inclusion criteria were selected. They were staged by pulmonary function test (PFT) and evaluated by electrocardiography and echocardiography. All the patients were interviewed with proper interview sheet, which was designed especially for this study. Data was analyzed using the student t-test, percentages, mean values in SPSS Software 22.0 version.

Results : Mean age was 52.54±9.55 years, with male preponderance, male to female ratio 5.25:1. Mean duration of disease was 6.36 ±4.14 years. The common symptom was breathlessness (100%). Most common ECG and ECHO finding was right axis deviation (52%) and pulmonary artery hypertension (54%) respectively. Right axis deviation and Poor 'r' wave progression were significantly correlated with disease severity by ECG findings while R.A. dilatation, R.V. dilatation and Pulmonary hypertension were significantly correlated with disease severity by ECHO findings (p<0.05).

Conclusions : COPD is more common in males and in the 5th and 6th decade. Most of the patients have advanced disease at presentation. The incidence of abnormalities of ECG and echocardiography increases with severity of COPD. ECG and echocardiography are better tools than clinical methods in detecting right ventricular dysfunction (RVD) in COPD. So COPD patients should be screened for RVD by echocardiography.

INTRODUCTION

COPD is characterized by slowly progressive air flow obstruction, resulting in dyspnea and exercise limitation, and pulmonary arterial hypertension (PAH) is its major cardiovascular complication.¹ Right ventricular (RV) dysfunction is common in patients with COPD particularly in those with low oxygen saturation. It occurs in up to 50% of the patients with moderate to severe COPD.² When present, it can reduce exercise tolerance, increase dyspnea, and contribute to an overall decrease in functional status, and portends a higher mortality rate. Its recognition and treatment may lead to prolonged survival and improved quality of life.

This study was undertaken to study the clinical and echocardiographic changes in COPD patients with different grades of severity of the disease, as assessed

clinically and through pulmonary function testing. Further, an attempt has been made to compare the electrocardiographic and the echocardiographic in observation, with respect to duration and severity of the disease and to see which of them is a better predictor of right ventricular dysfunction in COPD, so that the patients can be identified at an earlier stage of the disease, as early recognition and treatment of right ventricular dysfunction in COPD, leads to prolonged survival and improved quality of life.

METHODS AND MATERIALS

The present study was undertaken in department of medicine of a tertiary care hospital

Study Design

Hospital Based Descriptive Cross-Sectional Study

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Target Population

Adults presented with symptoms of COPD fulfilling inclusion criteria.

Inclusion Criteria

Consenting adult patients with

- 1) Symptoms suggestive of chronic bronchitis i.e. history of cough with expectoration of at least 3 months duration in 2 consecutive years.
- 2) Patients with history of breathlessness of long standing duration with or without cough.
- 3) Findings of COPD on physical examination and/or radiographic investigation and/or in PFT in patients with above symptoms

Exclusion Criteria

- 1) Patients less than 18 year age.
- 2) Patients with pregnancy or having history of Bronchial asthma, Pulmonary tuberculosis, Bronchiectasis, known congenital or acquired heart diseases, Diabetes mellitus and Hypertension, thyroid disease, pneumoconiosis, LVD in 2D Echo.
- 3) Patients with altered sensorium or with any critical illness like a respiratory failure, shock, MODS.

Detailed history was taken for Symptoms of COPD and development of RVD. Patients were also asked about symptoms of other diseases to exclude them from study. Detailed general examination and systemic examination was done. All patients were subjected for PFT and the best three attempts were taken. CXR, 12 lead ECG, 2D Echo and other routine investigation like Hb%, Total count, Differential count, ESR, Urine routine and microscopy, Random blood sugar, blood urea, serum creatinine were also done. All patients were treated according to standard guidelines. All the patients were interviewed with proper interview sheet, which was designed especially for this study and was filled by the author. Data was analyzed using the student t-test, percentages, mean values in SPSS Software 22.0 version.

OBSERVATIONS AND DISCUSSION

In this study, we included 50 patients fulfilling inclusion criteria. No patient was of less than 35 years. The mean age was 52.54 ± 9.55 years, range 31-75 years. Maximum incidence of COPD in this study was among the age group 41-60 years (66%). 18% patients were from 61-70 year age group, 12% patients were from 31-40 year age group. Only 4% of the patients were > 70 years. In the

present study, 84% of the patients were males and 16% were females. The male: female ratio was 5.25:1. This higher incidence of COPD in males can be attributed to smoking.³ In our study none of the females were smokers but all of them had history of cooking with dried cow dung or dried wood fuel.

In the present study, it was found that laborer had highest incidence (44%) of COPD and lowest incidence (8%) was found in drivers. MS Ahmed et al⁴ and Sunil babu M et al⁵ has also found results comparable with present study. In the present study, all the patients were coming from urban area while none of the patients from rural area. Longer duration of tobacco exposure is mainly responsible factor in laborer and office worker.⁴ In our study, no females patients (n=8) had history of smoking. From remaining 44 male patients, majority (40.47%) had history of smoking exposure of at least 11-20 pack years. Mean duration was 19.02 pack years. Gupta et al⁶ and MS. Ahmed et al⁴ also have mean of 26.4 ± 16.1 pack years and 56.24 ± 42.25 pack years of smoking history which is comparable to the results of present study.

In the present study, the mean duration of disease was 6.36 ± 4.14 years, range 2 to 18 years. Maximum number of patients (60%) had symptoms of 1-5 years of duration, 14% patients had more than 10 years of duration. In the study conducted by Gupta et al⁶ and Suma KR et al⁷ the mean duration of disease was 8.9 ± 4.9 years and 5.71 years respectively which was comparable to our study.

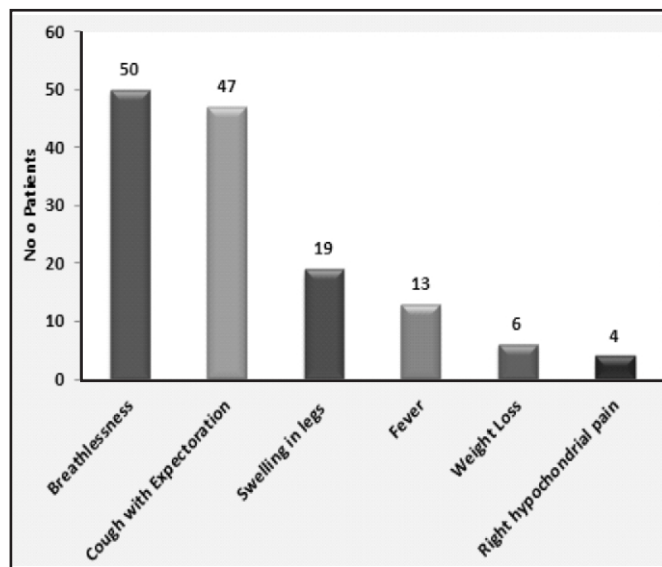


Figure 1: Symptom at presentation

In the present study (Figure 1), all the patients (100%) had history of breathlessness at presentation. Second common symptom was cough with expectoration (94%). Least common symptoms was right hypochondrial (RHC)

pain (8%). Mean Systolic Blood Pressure (SBP) was 113.62 ± 22.67 and mean Diastolic Blood Pressure (DBP) was 72.88 ± 12.76 mmHg. Mean pulse rate was 98.32 ± 16.83 beats/minute. Kutum US et al⁸ have mean (SBP) was 127.24 ± 12.60 , mean DBP was 77.24 ± 6.64 mmHg, mean pulse rate was 87.58 ± 8.86 beats/minute which is similar with present study. Side effect of beta mimetic and anticholinergic agents may be the responsible factors for higher pulse rate in some patients⁹.

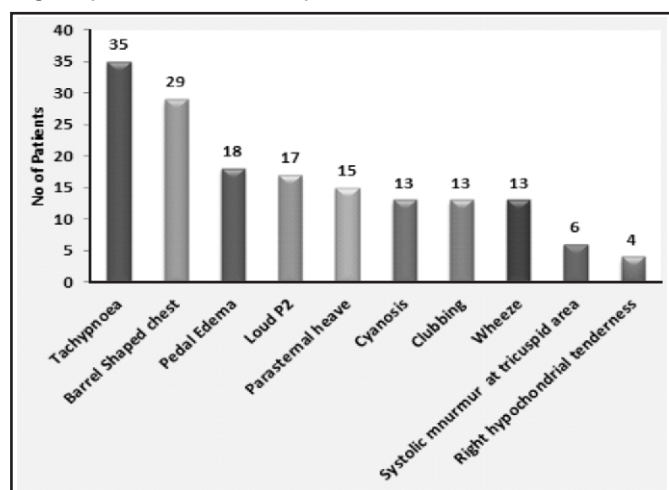


Figure 2: Physical Signs at presentation

Figure 2 shows that the most common sign at presentation was Tachypnea (70%) followed by Barrel Shaped chest (58%). Least common sign was RHC tenderness (8%). Krishnan DR et al¹⁰ and VN Dhadke et al¹¹ also show comparable results with present study. Commonest x-ray finding was Emphysema (80%) followed by increased bronchovascular markings (68%) and least common finding was Cardiomegaly (24%). The present study results were comparable with Krishnan DR et al¹⁰ and Suma KR et al.⁷

In the present study PFT Shows (Table 1) that all patients had FEV1/FVC was $< 70\%$. Mean FEV1 was $36.38 \pm$

TABLE 1: SEVERITY OF COPD DISEASE

Degree	FEV1%	No of Patients	% of patients
Mild	60-79	2	4%
Moderate	40-59	17	34%
Severe	< 40	31	62%
Total		50	100%

13.93% of predicted, range 17 to 65 % of predicted. Maximum number of patients (62%) had severe airflow obstruction at the time of presentation and only 4% had mild disease. According to Gold criteria, patients usually experience worsening dyspnea when the patient has FEV1 $< 50\%$ of predicted. Thus they tend to seek medical attention during this stage, accounting for the majority of patients who have severe obstructive defect. Kutum US et al⁸ and Akturk F et al¹² also shows comparable result 45.79 % and 54% respectively with present study (36.38%). 6 patients (12%) had normal ECG and 44 patients (88%) had abnormal ECG (table 2). Commonest finding on ECG was RAD (52%) followed by 'p' pulmonale (48%) and RVH (44%). While incomplete right bundle branch block (RBBB) was least common finding (8%). Jatav VS et al¹³ and Suma KR et al⁷ also shows similar observation.

TABLE 2: ECG FINDINGS

	No of Patients	% of patients
'p' pulmonale	24	48%
Low voltage complex	14	28%
Right axis deviation	26	52%
Poor 'r' wave progression	16	32%
In complete RBBB	4	8%
Right ventricular hypertrophy	22	44%
Normal	6	12%

TABLE 3: CORRELATION OF ECG FINDINGS WITH SEVERITY OF THE DISEASE

	Mild (n=2)	Moderate (n=17)	Severe (n=31)	P value
'p' pulmonale		7 (41.1%)	17 (54.8%)	0.2538
Low voltage complex	1 (50%)	3 (17.6%)	10 (32.2%)	0.4354
Right axis deviation		5 (29.4%)	21 (67.7%)	0.0247
Poor 'r' wave progression		5 (29.4%)	11 (35.4%)	0.0084
In complete RBBB			4 (12.9%)	0.2638
RVH		5 (29.4%)	17 (54.8%)	0.1651
Normal	1 (50%)	5 (29.4%)		0.1797

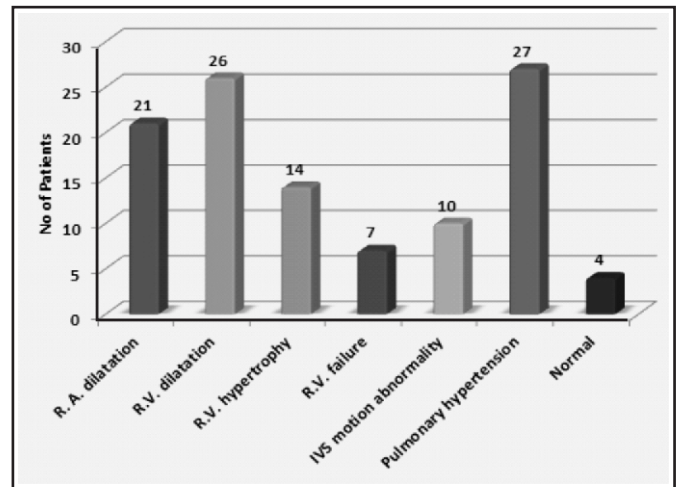
TABLE 4: CORRELATION OF ECHO FINDINGS WITH SEVERITY OF THE DISEASE

	Mild (n=2)	Moderate (n=17)	Severe (n=31)	P value
R. A. dilatation		3 (17.6%)	17 (54.8%)	0.0431
R.V. dilatation		4 (23.5%)	23 (74.1%)	0.0001
R.V. hypertrophy		3 (17.6%)	11 (35.4%)	0.3329
R.V. failure			7 (22.5%)	0.1594
IVS motion abnormality		1 (05.8%)	9 (29.1%)	0.1226
Pulmonary hypertension	1 (50%)	5 (29.4%)	21 (67.7%)	0.0386
Normal	1 (50%)	3 (17.6%)	0	0.2102

In the present study, 31 patients of severe COPD had abnormal ECG finding. Out of which RAD (67.7%), RVH (54.8%), p' pulmonale (54.8%), were common finding in them. Out of 17 patients of Moderate COPD 12 patient had abnormal ECG finding. Out of which 'p' pulmonale (41.1%), RAD (29.4%), RVH (29.4%) were common and 5 patients had normal ECG (29.4%). Out of 2 patients of Mild COPD 1 patient (50%) had abnormal ECG which was low voltage complex and 1 patient (50%) had normal ECG. Incidence of ECG abnormalities increases with the severity of disease like p' pulmonale 41.1% vs 54.8% in moderate vs severe disease respectively. Statistical correlation was found with right axis deviation and Poor 'r' wave progression which was also significant (i.e. $p < 0.05$). Jatav VS et al¹³ and Suma KR et al⁷ also shows similar observation. Low voltage complexes and poor progression of 'r' wave, both incidence also increased with increasing severity, but it was not found to be statistically significant in case of low voltage complexes.

Electrocardiographic changes accompanying increasing airway obstruction and arterial blood gases in chronic bronchitis and emphysema are due to several mechanisms like hyperinflation of lungs, depression of the diaphragm, hypoxia and changes in body chemistry and vasoconstriction and reduced pulmonary vascular bed as a result of destructive parenchymal changes as suggested by Spodick and Co-workers.¹⁴ In cases with little or no airway obstruction, these ECG changes are due to positional changes of heart, while in those with severe airway obstruction, both positional changes and hypertrophy or dilation, or both, of the right side of heart are likely to be responsible for the very high incidence of these electrocardiographic features.

In this study (Figure 3), 4 patients (8%) had normal echocardiographic finding and 46 (92%) patients had abnormal echocardiographic finding. Pulmonary

**Figure 3: ECHO Findings**

hypertension which was commonest (54%) finding followed by RVD (52%), RAD (42%), RVH (28%), RVF (14%). Kutum US et al⁸ and Suma KR et al⁷ also found similar results.

Table 4 shows that in patients of severe COPD, RVD (74.1%), PAH (67.7%), RAD (54.8%) were abnormal echocardiographic finding. Out of 17 patients of Moderate COPD, 14 patients had abnormal echocardiographic finding out of which PAH (29.4%), RVD (23.5%), RVH (17.6%) were common and 3 patients had normal Echo (17.6%). Out of 2 patients of Mild COPD, 1 patient (50%) had abnormal Echo which was pulmonary hypertension and normal 1 patient (50%) had normal Echo. It is observed that Incidence of Echo abnormalities increase with severity of disease like RVD 23.5% VS 74.1% in moderate VS severe disease respectively.

All the findings had statistically significant correlation with severity except R. V. hypertrophy and inter ventricular wall motion abnormality, this is probably because of (1) lesser number of patients in the moderate severity group. (2) Relative difficulty in getting the exact measurement of

the thickness of R.V. free wall, as it is difficult to differentiate from the surrounding structures and (3) Local variations in the right ventricular wall thickness in relation to the presence of trabeculae the right ventricle. Kutum US et al⁸ and Suma KR et al⁷ also found statistically significant and comparable results to our study.

LIMITATION OF THE STUDY

There is small sample size in this study and we also had excluded COPD patients with comorbidities like hypertension, LVD, DM, Thyroid diseases, other respiratory diseases etc. So results of this study may not reflect entire population of COPD.

CONCLUSION

COPD is more common in males and in the 5th and 6th decade. Most of the patients have advanced disease at presentation. The incidence of abnormalities of ECG and echocardiography increase with severity of COPD. ECG and echocardiography are better tools than clinical methods in detecting R.V. dysfunction in COPD. So COPD patients should be screened for RVD by echocardiography.

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"Role Of Elastography In Thyroid Nodules And It's Histopathological Correlation ."

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Keywords: USG, Elastography, Benign, Malignant.

ABSTRACT

Aims & Objective: To determine the ultrasound elastography findings in thyroid nodules. To evaluate the diagnostic accuracy of elastography of thyroid nodules in differentiating benign and malignant nodules. To correlate the ultrasound elastography with the FNA and/or histopathology findings. **Methods:** A prospective study of 50 patients presenting with thyroid swelling was carried out by grey scale & Color Doppler ultrasound with ultrasound elastography and findings were correlated with histo-pathological results. **Result:** In our prospective observational study of 50 patients with thyroid nodules incidence of thyroid nodules is more common in the young and middle aged patients (15-40 years). All the pathologies are much more common in females than in males (male:female ratio=1:9) The benign pathologies (78%) are observed much more often than the malignant ones (22%). Various B-mode ultrasound characteristics of thyroid nodules like irregular margins, microcalcifications, absence of halo, increased intranodular vascularity and hypoechogenicity, help to characterize the thyroid nodules and are indicative of being suspicious of malignancy. **Conclusion:** The combined use of thyroid US elastography with B-mode US may improve the ability to discriminate benign from malignant thyroid nodules and reduce the number of needed FNAs.

INTRODUCTION

The thyroid gland is one of the largest endocrine glands. The thyroid gland is found in the neck, below the thyroid cartilage. Because of the superficial location of the thyroid gland, high resolution real-time grey-scale and Color Doppler sonography can demonstrate normal anatomy and pathologic conditions with remarkable clarity.

Thyroid nodules are a common entity found in about 4-8% of adults by palpation, 41% by ultrasound and 50% at autopsy according to studies done. A minority of these, less than 5% are malignant^[1,2]. Thyroid nodules are commonly seen in areas of iodine deficiency, females with increasing age and after radiation exposure. A thyroid nodule is an abnormal growth of cells within the thyroid gland and can be non-cancerous (benign) or cancerous (malignant). The clinical importance of thyroid nodule management rests with the need to detect malignant nodules that occurs in 5%-10% among asymptomatic nodules depending on age, gender, radiation exposure history, family history and other factors (Mazzaferri 1993; Frates et al. 2005; Yeung and Serpell 2008). These well differentiated thyroid malignancies have excellent

prognosis with 80 - 95% having 10 year survival rate. Early detection and treatment of thyroid nodules are necessary in order to manage thyroid malignancies^[3].

Among the diagnostic methods, ultrasonography (USG) is the most fundamental one. With the application of high-resolution USG devices, the assessment, with high-frequency linear probes, has become very important in thyroid gland diseases. Ultrasonic waves, which penetrate easily into the thyroid gland, can easily monitor the modifications in the gland. The fact that USG is cheap, common and easy to use makes it very important in characterization of nodules and diagnostic in case of thyroid diseases^[4,5].

USG is first line investigation for detection of thyroid nodules and further characterizing them as it is an excellent, noninvasive, and cost-effective diagnostic tool^[6]. Several sonographic patterns of malignant thyroid nodules described include: hypo echogenicity, blurred or speculated margins, spot micro-calcifications, absent halo sign and intra-nodular vascularity (type 2 vascularity). These patterns have a low sensitivity and specificity hence rendering the examination inaccurate in differentiating benign and malignant thyroid nodules^[7,8,9].

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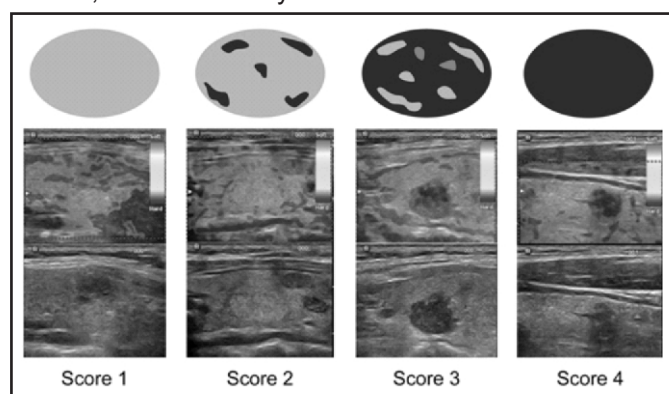
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According to the American Thyroid Association(ATA) guidelines, no single US feature or combination of features is adequately sensitive or specific to identify all malignant nodules [10].

For this reason, fine needle aspiration biopsy (FNAB) is required for the nodules greater than 10mm or those with suspicious ultrasound signs^[10,11,12,13,14]. Fine needle aspiration cytology or biopsy is mainstay of procedure to differentiate benign thyroid nodule from malignant. This can prevent further morbidity and mortality of the patients due to early diagnosis and appropriate further management^[15]. However, FNA has inherent limitations, with only moderate sensitivity and specificity in various studies^[14,16,17,18] due to indeterminate and nondiagnostic results. As a consequence, a significant number of patients eventually receive unnecessary thyroid surgery.

Strain Elastography is the most common and most widely used UE method. Strain imaging was the first introduced USE technique^[31]. In this method, external compression is applied with the ultrasound probe on the area or is generated by internal physiologic motion (e.g. cardiovascular, respiratory). Manual compression works fairly well for superficial organs such as the breast and thyroid while internal physiologic compression may be used for assessing elasticity in deeper located organs such as the liver^[16].

Below mention figure shows Asteria's criteria defined a score of 1 as elasticity that is entirely soft in the nodule, 2 as mostly soft in the nodule, 3 as mostly hard in the nodule, and 4 as entirely hard in the nodule^[21].



MATERIALS AND METHODS:

Inclusion criteria:

- Patients with physical examination suggestive of palpable thyroid swelling in lower neck in midline or on either side.
- Patients with signs and symptoms suggestive of thyroid disorder (Hyper/ Hypothyroidism) and/or patients with altered thyroid function tests

Exclusion criteria:

- Patient already diagnosed and treated for thyroid lesion
- Purely cystic nodules
- FNAC showing inadequate aspirated material or no final cytology or histopathological diagnosis.

Study period

- January 2019- October 2019 (10 months).

Study population

- 50 women.

Methodology:

TECHNIQUE OF THYROID SONOGRAPHY

The patient is examined in a supine position, with the neck slightly overextended by a pillow under the shoulders. High frequency linear array transducer is used (at least 7.5 MHz). Color doppler evaluation is recommended for a better diagnosis.

The ultrasound examination of thyroid should always include the entire neck, looking for abnormal lymph nodes, enlarged parathyroid glands and abnormal masses. Both lobes must be scanned individually in transverse and longitudinal planes. Other structures in the neck such as common carotid arteries and internal jugular veins, the strap muscles, cervical supraclavicular lymph nodes are also evaluated and the findings are documented. This is followed by Doppler evaluation of thyroid gland and of any lesion found.

TECHNIQUE OF ULTRASOUND ELASTOGRAPHY

Ultrasound elastography was performed during the conventional ultrasound examination of the thyroid gland. The linear probe was placed on the neck with light pressure and a transverse plane with maximum diameter of the nodule was obtained. An additional plane with different characteristics, such as echogenicity and presence of calcification, was also selected for the evaluation of elasticity. A highlighted box shows the nodule under examination in the centre and some amount of normal thyroid tissue around the nodule. The patient is then asked to hold his or her breath for four to five seconds while the USE data were acquired. Adequate compression is shown by a green color on all the compression bars at the side of the image. An elastogram is then displayed over the conventional ultrasound image in a color scale. E-ThyroidTM, a quantitative scoring method, is used to calculate elasticity contrast index (ECI). The ECI value is computed interactively and displayed on the monitor of the US machine after the

nodule's boundaries are delineated by the operator. A larger ECI value suggests a stiffer nodule, indicating an increased likelihood of malignancy. The largest among multiple ECI values is selected for analysis of diagnostic accuracy^[19].

Statistical analysis

- All data was analyzed using the Microsoft Excel software. Statistical analysis of data was done after compiling and tabulation of data.

RESULTS

- Fifty women with thyroid lesions were assessed in the study. On sonography out of 50 lesions 13 were benign thyroid nodule, 17 were goiter, 8 were colloid nodule, 4 were follicular neoplasm and 8 were malignant lesions of thyroid. (Table I)
- Elastography color score shows Out of 50 lesions 20 shows score 1; 13 shows score 2; 12 shows score 3 and 5 shows score 4. (Table II)
- Elastography contrast index shows out of 50 lesions 38 shows ECI value less than 3 and 12 shows ECI value more than 3. ECI value of <3 was found in majority (76%) of cases, suggesting a benign etiology. (Table III)
- Fifty lesions were assessed by FNA/ histopathological examination; out of 50 lesions 2 were adenomatous nodule; 4 were colloid nodule; 28 were colloid nodule with cystic changes; 2 were thyroiditis; 3 were follicular adenoma; 7 were papillary carcinoma and 4 were follicular carcinoma. (Table IV)
- Thyroid nodules' elastography color scores of 1 and 2 brought 33 cases of true negative (benign) cases on FNA/histopathology test. Elastography scores 3 and 4 revealed 11 cases of true positive (malignant) nodules on FNA/histopathology. The false positive cases were 6 and there were no false negative cases. Thus, the sensitivity and specificity of elastography color scoring were 100% and 84.6% respectively. The elastography color scoring had a positive predictive value (PPV) and negative predictive value (NPV) of 68.75% and 100% respectively. The diagnostic accuracy was 88% (Table V).
- Correlation of ECI value to FNA / Histopathology findings showed that ECI value of less than 3 produced 37 true negative (benign) results on FNA/ histopathology. ECI value of 3 or more produced 10 true positive (malignant) cases on FNA/ histopathology. The sensitivity, specificity, positive and negative predictive values (PPV and NPV) of ECI value were 90.9%, 94.9%, 83.3% and 97.36% respectively. The diagnostic accuracy was 94% (Table VI).

DISCUSSION

Various B-mode characteristics of the thyroid nodules were examined before elastography. This demonstrated that no single sonographic feature can confidently distinguish benign and malignant thyroid nodules. This is in agreement with previous studies done by Frates MC et al in 2005, Papini et al (2002) and Jason D. Iannuccil et al (2004) where they evaluated the various sonographic characteristics in differentiating benign and malignant thyroid nodules.

In our prospective observational study of 50 patients with thyroid nodules we draw conclusions. Majority of the patients present with nodular swelling of thyroid. The benign pathologies (78%) are observed much more often than the malignant ones (22%). The most common benign pathology is colloid goiter (56%) while amongst the malignant pathologies, papillary carcinoma (14%) is the most common.

Moreover, no single ultrasound feature is pathognomic for malignancy.

The elastography color scoring has good sensitivity, specificity and negative predictive value (100%, 84.6% and 100% respectively), while it has a low positive predictive value (PPV) of 68.75%. The sensitivity, specificity, PPV and NPV of ECI value with cut-off for malignancy >3 are quite good.

High resolution grey scale ultrasound has emerged as an initial imaging modality of choice for the evaluation of patients with thyroid enlargement. Although FNA is considered the gold standard for diagnosis, it is yet imperfect as up to 15-30% of samples are considered non-diagnostic or indeterminate.

Thyroid ultrasound elastography is a noninvasive method of assessing thyroid nodules that provides complementary information to B-mode US and FNA. Like other USG methods, it is easy to access, performed in real time, non-invasive, easy to apply, it takes short time and does not contain ionizing radiation.

The combined use of thyroid USE with B-mode US may improve the ability to discriminate benign from malignant thyroid nodules and reduce the number of needed FNAs. Thyroid USE may also aid with the difficult problem of distinguishing between malignant and benign follicular neoplasms.

Ultrasound elastography using color scoring and ECI values is valuable; Because of its high specificity in predicting malignancy, ultrasound elastography can be a good adjunctive diagnostic tool to conventional

ultrasound in screening of nodular thyroid disease and in determining which nodules should be biopsied or excised elastography. On the contrary, USE is not sensitive enough to determine which nodules can only be followed with imaging without fine-needle aspiration cytology.

Thus, histo-pathological diagnosis by Fine-needle aspiration cytology or biopsy remains the most accurate method of differentiating benign from malignant nodules.

Table 1: Sonographic diagnosis of thyroid lesions

Radiological Diagnosis	No. of Patients	Percentage
Benign thyroid lesion / nodule	13	26
Goitre	17	34
Colloid nodule	08	16
Follicular neoplasm	04	08
Thyroiditis	00	00
Malignant lesion of thyroid	08	16
Total	50	100

Table 2: Elastography color score

Color Score	No. of Patients	Percentage
Score 1	20	40
Score 2	13	26
Score 3	12	24
Score 4	05	10
Total	50	100

Table 3: ECI value of Thyroid Nodules

ECI value	Frequency	Percentage
Less than 3	38	76
Greater than or equal to 3	12	24
Total	50	100

Table 4: Histopathology (FNAC/FNAB) results

Benign	No. of nodules	Percentage
Adenomatous nodule	02	04
Colloid nodule	04	08
Nodular colloid goitre/Colloid goitre with cystic changes	28	56
Thyroiditis	02	04
Follicular adenoma	03	06
Malignant		
Papillary carcinoma	07	14
Follicular carcinoma	04	08
Medullary carcinoma	00	00
Anaplastic carcinoma	00	00
Metastasis	00	00
Total	50	100

Table 5: Correlation between Elastography color scoring and FNA/histopathological diagnosis

ECI value	FNA/Histopathological diagnosis
	Benign
Less than 3	37 (94.9%)
False positives	2 (5.1%)
	Malignant
Equal to or more than 3	10 (90.9%)
False negatives	1 (9.1%)

Table 6: Correlation between ECI value and FNA/histo-pathological diagnosis

ECI value	FNA/Histopathological diagnosis
	Benign
Less than 3	37 (94.9%)
False positives	2 (5.1%)
	Malignant
Equal to or more than 3	10 (90.9%)
False negatives	1 (9.1%)

Image 1: COLLOID NODULE - ELASTOGRAPHY SUGGESTING BENIGN LESION



Image 2: COLLOID GOITRE – SOME OF THE SONOGRAPHIC FEATURES WERE SUSPICIOUS OF MALIGNANCY AND ELASTOGRAPHY SUGGESTED A BENIGN LESION

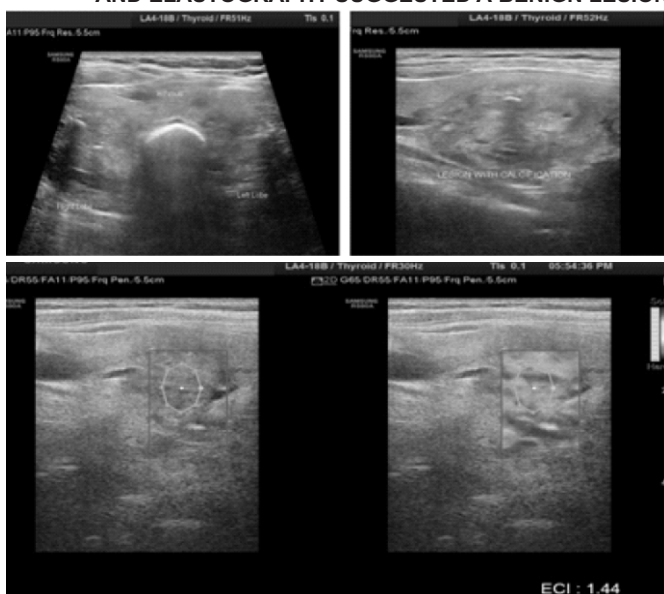


Image 3: FOLLICULAR ADENOMA – ELASTOGRAPHY SUGGESTING A BENIGN LESION

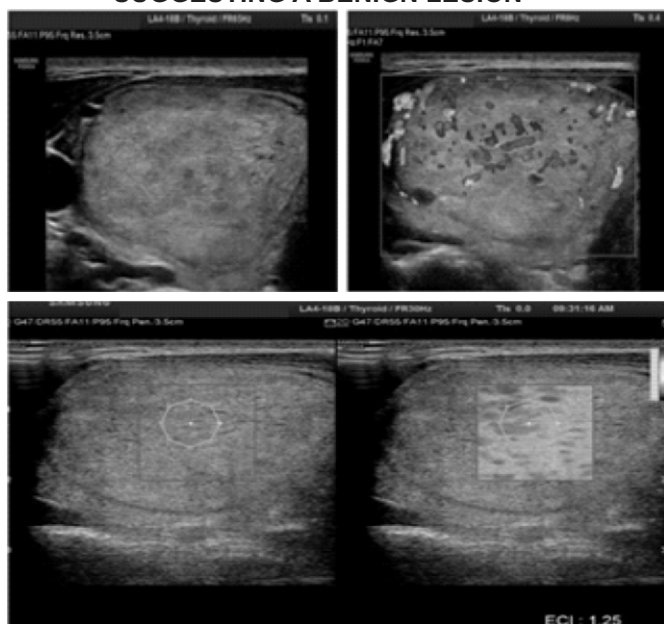


Image 4: FOLLICULAR CARCINOMA – ELSTOGRAPHY SUGGESTING A MALIGNANT LESION

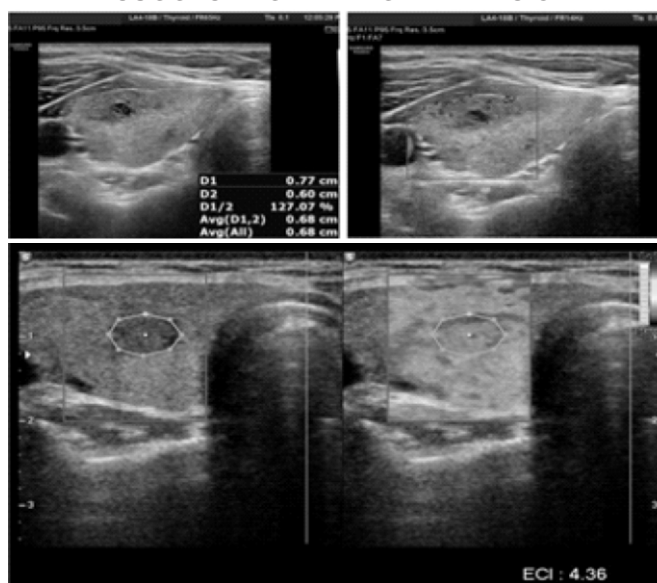
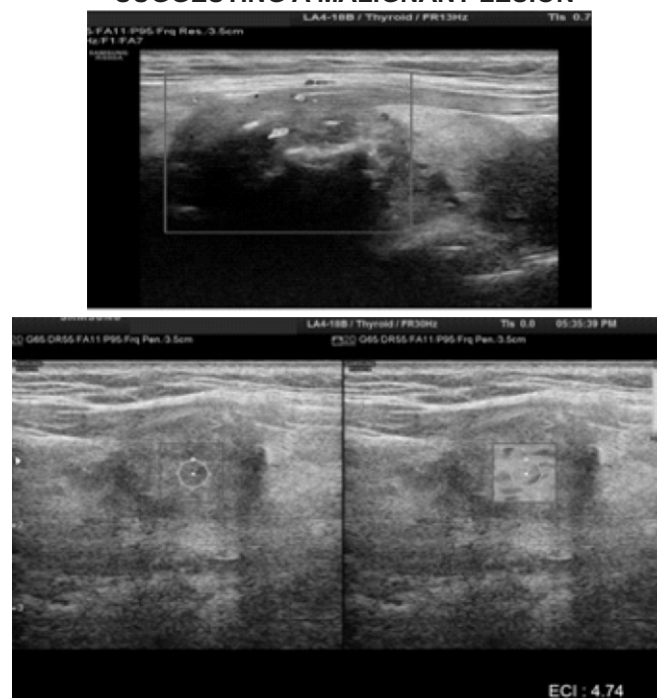


Image 5: PAPILLARY CARCINOMA – ELASTOGRAPHY SUGGESTING A MALIGNANT LESION



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Review Article

Pursuit of Happiness

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Keywords : Pleasure, Joy, Bliss

ABSTRACT

The purpose of life is to remain happy and peaceful and make others happy and peaceful. Happiness is a journey, not a destination. There is no better time to be happy than now! Depending on mental and spiritual states of the person, there can be three levels of happiness i.e. pleasure, joy and bliss. In pleasure, happiness is sought from outer world, its short lived and physiological. Joy is mixed as it brings happiness from inner and outer world, its longer lasting and psychological, e.g. service to mankind & success. Bliss is where mind ceases and consciousness gets identified with universal consciousness, achieved by spiritual practices, yogic ascent and meditation.

All of these mental states, have different neurochemical & neurobiological imprints on brain. Main substrates here are endorphins, GABA and endocannabinoids. These three levels are Satvik, Rajasik & tamasik. Happiness can be measured with neuropsychological testing, advanced EEG, fMRI and PET scan. Different components of happiness are found in different areas of brain e.g. laughter responses are generated in pre-frontal cortex. Good events activate rostral anterior cingulate and amygdala etc. Determinants of happiness are genes (20%), circumstances (10%), money (20%), morality and spirituality (50%).

The keys to happiness are physical, moral, religious and spiritual. To remain happy, health is vital so eat right, do exercise, and get enough sleep. We need to work on relationships. We have to love and appreciate people, encourage them, forgive them and express gratitude. Wisdom & courage are important and so are hobbies & creative activities.

Control on negative emotions, emotional attachment, anger and ego, helps. Positive emotions, positive attitude, ethical conduct, enables meaningful & joyful life. All these measures have limitations & depend on external world to some extent. While our ethics, our religious path & specifically spiritual practices make our lives blissful.

Meditation is important and any of the methods of mindful, sound, breathing or thought meditation are helpful. Contemplation or transcendence meditation is equally good. Meditation teaches us to remain in present tense & also makes us calm, quiet, attentive and equanimous.

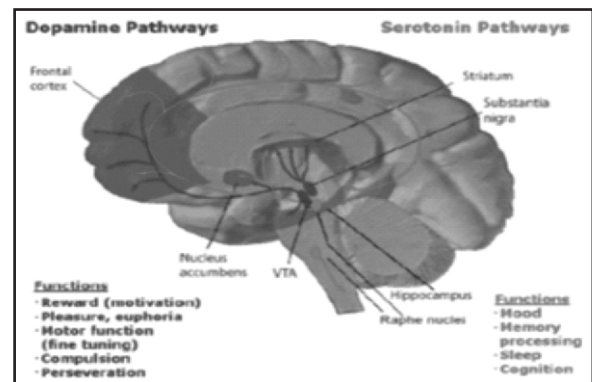
The purpose of life is to remain happy and peaceful and make others happy and peaceful.¹ Happiness is a journey, not a destination.² So let us make the journey of life ,a happier journey .We are in charge of our Happiness. Not anybody else. So, if we want to be happy and decide to be happy ,we can surely be. Further, there is no better time to be happy than right now. So let us be happy now, from this moment.

Depending on physical, mental and spiritual states of a person, there can be three levels of happiness i.e. pleasure, joy and bliss (physical, mental and spiritual levels or Tamas, Rajas and Satva levels in that order). Pleasure is purely a physical state, and here happiness is sought from the outer world, it is short lived and physiological & instinctual.

Neural circuitry of pleasure

Dopamine and Serotonin Pathways

Figure 1: Illustration of the dopamine and serotonin pathways of the brain.⁸



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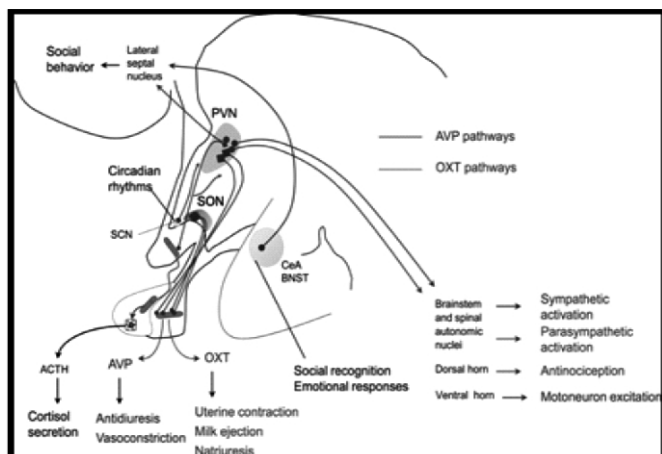
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Pleasure is a short sensual experience, and is perceived in eating good food, listening music, enjoying fragrance, seeing nice things and sexual pleasure etc.^{3,4} These experiences purely depend on external world and usually one requires money or some form of asset is required as an exchange to fulfill this pleasure. The substrates for pleasure are dopamine (DA) and serotonin (Se) while driving force is catecholamines (NA). These all are brain chemicals: neurotransmitters.⁵⁻⁷

Joy the next level (mental level) is a mixed level, as it brings happiness from both; the inner and the outer world; it is longer lasting and psychological. Service to humanity, success, money, awards, achievements, creativity and simple religious practices lead to joy.⁹ Vasopressin, prolactin and oxytocin are substrates of joyful activities in addition to DA, Se, & NA. These Neuropeptides / chemicals bring social recognition and bonding, leading to joy.^{11,12} Performing music is a matter of joy, while listening to music is an activity of pleasure.

Neural Circuitry of Joy

Figure 2: Illustration of Oxytocin and Vasopressin pathways of the brain.



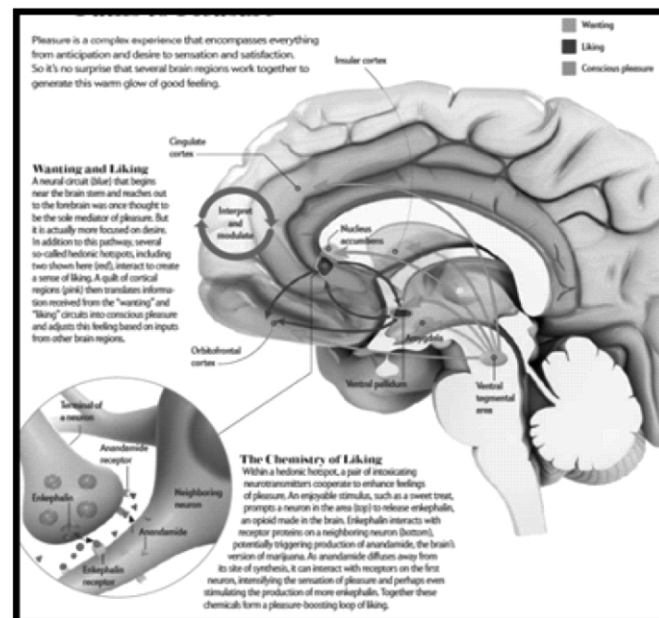
Bliss (spiritual level) is the highest state, where activities of mind ceases and apparently consciousness becomes identified with the universal consciousness, and it is achieved by mindfulness practice, yogic practices and meditation. It is a state of just being.¹³ Main substrates / neuropeptides here are endorphins, GABA and endocannabinoids & no more dopamine, serotonin. In Indian spiritual context, these three levels are tamasik (pleasure), Rajasik (Joy) and Satvik (Bliss)... Body, mind & spirit.¹⁴

Neural Circuitry of Bliss

Can we measure Happiness? Yes. Happiness can be measured with neuropsychological testing, advanced EEG techniques (MEG), fMRI, SPECT and PET scan.

Different components of happiness are found in different areas of brain e.g., laughter responses are generated in pre-frontal cortex. Good events activate rostral anterior cingulate gyrus, ventral tagmental area and amygdala etc.¹⁵

Figure 3: Illustration of Bliss pathways of the brain.

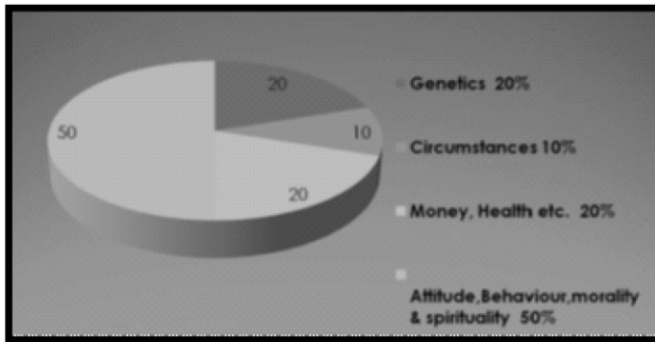


Happiness of a person is determined half of the times by following things: his/her genes (20%), circumstances of life (10%); monetary status (affluence) and health (20%). Rest half of the happiness really comes from morality, attitude, relationship management & spirituality of a person.

Some people are born happy, a gene effect. Oscar Wilde said correctly, "Some cause happiness, wherever they go, others whenever they go". To some extent, certain genes decide our happy outlook towards life: Some of these genes are VMAT 2, HTTLPR, FAAH, MAOA, DRD2, DRD4, HTR1A etc. While we await gene editing as a therapy to achieve happiness, we can at least modify gene expression based on the principles of Epigenetics. By altering our thoughts and behaviors and by our altruistic actions as well as meditation; we can change our gene expressions and can unlock the DNA code. Next thing to realize is that circumstances do pass away. They cause temporary effects on overall happiness level of a person in life. Money is important and needed for security, for education & standard of living. However, more money & more success cannot bring more happiness. In fact, excess of money takes away morality, spoils relations and may corrupt health.¹⁶⁻¹⁹

When wealth is lost nothing is lost, but when health is lost something is lost and when character is lost everything is lost.-

Determinants of Happiness



HOW TO BE HAPPIER ? KEYS TO ENJOY A HAPPY LIFE

Physical health is vital. Ill health cannot allow us to remain in happy state. So eat right, do exercise, get enough sleep, and learn to relax. Also laugh exhaustingly and love abundantly.^{20,21} Proper exercise is important. Walking, running, gym, swimming & aerobics are examples of good exercises. Resistance training, weight lifting and massage are good for muscles. Yoga and pranayama are excellent for physical health, mental strength & bliss.²² We must thank people including our PM Shri Narendrabhai Modi for promoting Yoga at a global level.²³ Certain types of **food** increase happiness level. In general consuming balanced diet with enough green leafy vegetables, fruits, dry fruits, enough liquids, herbs, olive oil are useful. Mediterranean or similar diet are considered good. Some type of food items are linked with certain neurotransmitters of brain. e.g. dopamine level can be increased by consuming apple, watermelon, kauncha seeds. Similarly, serotonin levels can be increased by consuming banana or by doing light stretching exercise or listening to soft music. oxytocin levels can be raised by chocolate and endorphins by eating pasta, grapes & chili pepper.^{24,25} Medical measures for relieving unhappiness are psychological counseling, mood elevators and Psychiatry drugs for treatment of anxiety or depression. In future gene editing therapy might be available. Experimentally, DBS (Deep Brain Stimulation) around peri aqueductal area can produce a feeling of bliss, by relieving pain.²⁶⁻²⁸

Relationships play very important role in our life in maintaining our joy. If we manage our relations successfully, life becomes very easy or else it can disturb our peace of life for sure. So, we have to maintain and nurture five (5) great relationships: **Relations with our spouse, children, parents & in laws, friends and all people at our work place.** We need to love our spouse, be honest and develop deep harmony and understanding. Women want freedom & respect. They

need to be validated and cared for. We need to spend quality time with children and friends. Children should be provided good education, culture and high morals of living. It is important that we take care of our parents and parent in laws with due respect. Similarly, we need to respect seniors. Friends are our lifelines. A single or two true friends are enough. They share our feelings without any expectations. Is n't that amazing that without any blood relation, true friends can go to any limit to help a friend come out from struggles, failures and miseries. What we have to understand that virtual friendships with many on social media is of no use. We need actual physical friends. We should restrict use of social media and rather spend time with actual friends. Social media has done wrong to us on many accounts and has deprived us of our joy, emotions, focus and empathy. Next we should appreciate our colleagues, encourage subordinates and care for our own people, help them and forgive them if they make mistake or hurt us.²⁹

Etiquettes are very important. Simple gestures and manners help a lot in earning Happiness. Keep smiling. Smile solves so many problems. Keep Greeting people with Good wishes. Express your feelings and express from heart. "Thank you". "I care for you". "Take care". "I am sorry if I have hurt you".

Laugh exhaustingly from the core of heart in a true way. Laugh at your own mistakes. Look into the eyes of a person and call him/her respectfully with his/her name. Be a good listener. Talk less, listen more. Take interest in matters of people whom you converse and appreciate some good virtues. These will make them happy and in turn they will make you happier. Silence is a great tool and prevents so many problems. So observe silence strategically.

Hobbies make our lives joyful. Creativity makes life meaningful for each one of us. Reading, writing, music (performing), drawing, painting, dancing, gardening, grooming and so on. Creativity allows oneself to express from within. Great books are the best friends. Music is the medicine for the soul !! So learn music. Pets fill our lives with joy. All these things give meaning to our lives.

All these measures are good but have their own limitations and depend on external world to some extent, while philosophical thinking coupled with great virtues & spiritual practices bring ultimate Happiness. Let us first review the universal laws of life and then embark on journey of Ultimate Happiness.

Time management is very important quality of happy people." If you respect time, time will respect You". Plan

your day, month and year very effectively. But do not keep stressful schedules. Do the things that you enjoy. Do all those things which you only have to do. Delegate all other work to people and you may pay them off. Time saved is money earned and more importantly life years earned. Do creative activities and spend time with friends and family or do meditation in this earned time.

5 universal Laws of philosophy of life..

- Law of Attraction-Whatever we intensely desire from the core of our heart eventually materializes in reality. In simple words, it is the ability to attract into our lives ,whatever we focus and desire intensely. All thoughts and desires eventually take physical forms. So ask for happiness for yourself , believe that you can surely be happy ,document that wish on a paper and then start living as if you are already happy. Then see the miracle of the universe.
- Law of Karma-.. As you sow , so you reap. So, give to the world the best you have and the best will return back to you.
- Law of Destiny-Nobody gets anything more or before time as far as destiny is concerned.
- Law of Impermanence-"Nothing is permanent". Everything has its own life. This moment shall pass too ,whether good or bad.
- Law of connectedness- "Everything is connected to everything and everything affects everything." So think from a broader perspective.

Ultimate Happiness

Happiness is the nature of our own existence. To put it in other words, happiness is all the way inside us. **Our own inner being is full of Bliss. That is the reason why we love our ownself** Real and permanent happiness is not outside. If we explore our own selves and identify the causes of our miseries and subsequently get rid of the same, we all can rediscover our own bliss. The root Cause of miseries are nothing but the activities of our own mind that includes our thoughts, desires, emotions, Kashaya (greed, ego, deceit), attachment :raga and dwesha (with moha in the background) . If we introspect and purify these processes one by one, then we can surely attain happiness. In other words, unless we control the movement of our mind, and eliminate faulty business of our mind ; we cannot be happy truly.

There are certain **secret rules of permanent happiness (bliss), we may call them quantum rules** of spirituality. These are the Rules for obtaining inner and priceless things; happiness, bliss, Peace, love, respect . (or other way round)

Firstly, in the inner world, there is no exchange really. Whatever you give to the world, same thing always returns back to you .In other words, whatever we want for ourselves , we have to give to others. If we want love, we have to give love . If we want respect, we have to give respect. So if we want happiness , we have to give Happiness ..as simple as that !! If we give hatred or anger; then we can only get hatred or anger in return.

Secondly, we may get the same thing in multiple proportions , that means not necessarily same quanta. If we give few quanta of love, we may get infinite quanta of love (and only love). Same is true for all such" inner things."

Third rule is that this thing may come not necessarily from the same person , but may be from absolutely different corner /person . This is where we always get confused and get hurt or baffled. If we reflect and introspect on these rules very deeply, we will realize where we have gone wrong and why so many times our expectations from persons do not hold true .

So in summary ; Whatever you give always returns back to you. Moreover, it may come back in infinite quanta (proportion) and from any (different) direction.

Therefore, cultivating 5 inner virtues , following 5 morals, controlling 5 mental processes and doing 5 spiritual practices daily can immensely help in achieving permanent happiness at the level of Bliss.

Cultivating **5 virtues** can fill our lives with happiness & abundance. These are gratitude, appreciation, forgiveness, acceptance and kindness(compassion). Appreciate people for their smallest favors. Gratitude and appreciation can change our lives miraculously. These simple things can fill our lives with abundance and grace. We should always use soft & kind words. We must always speak truth.³¹

Forgiveness is the antidote to anger. Forgive people if they hurt you. It is more important to be Kind than being right. Forgiveness is the important key to happiness. First to forgive is the bravest. Similarly ask for forgiveness if you have hurt someone. Be kind & help people.^{32,33} Help them in whatever way you can. Kindness, honesty and respect for others are very important core qualities of a human being.. We should not criticize people. There is not enough time to love people as life is too short. So how can one find time to criticize people? Also We should not compare ourselves with others. Share love & share things that we possess. These should be supplemented with wisdom and courage.³⁰ Accept that you cannot change so many things. Accept willingly. Acceptance is a great

virtue.³⁴ These along with humanity, justice & altruism can create plentiful Joy.³⁵

5 mental processes control our inner peace and happiness. These are attachment, thoughts, desires, ego and attitude. To remain in bliss, we have to cut down our attachment and control and purify quality of thoughts. With our thoughts, we create our own universe and our future. Each single thought affects each and every cell of our body. We should guard our thoughts improve them for better.³⁶ Next, we need to reduce our desires. Desire is the root cause of our unhappiness as is attachment. We have to check our emotions and turn them for positive. Above all, our attitude should be positive. Life is 10% what happens to us and 90% how we react to it. It is all in our attitude, how we react to any situations.³⁷ We have to be polite and have to let go our ego. Ego is our biggest enemy. So is anger. Anger can destroy relations and families. All these elements contribute to our own temperament : Nature. Therefore, we have to control these mental processes by all possible means.³⁸

There is yet another thing at mental level that is profound and can affect our happiness and outcome and that is **our Belief System**. What we believe firmly and reaffirm with conviction can actually physically materialize. So believe in your own self ,believe that you will be happier day after the day and actually , you will become.

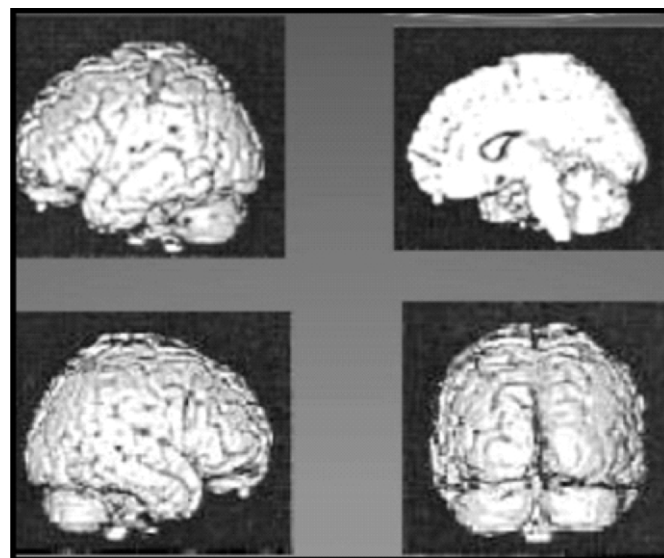
Religion opens the door of happiness & peace. So let us follow religion, maintain ethics & forgive others.

Every true Religion teaches us **5 Morals (Yama)**: Morals of Truth , non violence, non stealing, non collectiveness and faithfulness with spouse(or celibacy). We must always speak truth.³¹ We should always use soft & kind words while speaking truth. We have to be very honest . We must not kill or hurt any living being , nor we should hurt anyone by our words or even in our thoughts. This is the real Nonviolence. Compassion and love are the other names of Nonviolence. If you have the truth or compassion fully manifested in yourself, then automatically you are the happiest person. You are done with all that is best in a life. If you are nonviolent or truthful , you can not steal anything from anyone Non stealing), nor you can cheat anybody. Then you shall remain always faithful and honest to your spouse. That is Brahmacharya for all common people. Complete Celibacy is for those who have enunciated the world. Same way, you will not keep on accumulating or collecting worldly things beyond your actual requirements. These **five morals constitute core of Indian spiritual way of preaching about how to live our life?** We have to adhere to these basic qualities to maintain social and ecological balance apart from

religious structure. They therefore contribute towards universal and individual happiness. Righteous knowledge, righteous faith and righteous character are the three important higher keys of blissful happiness.³⁹⁻⁴¹ Practices of Raja yoga , Gyan (knowlegde) yoga, Bhakti (Devotion)yoga and Karma (sincere work without any expectation) yoga are gateways to spiritual realm.

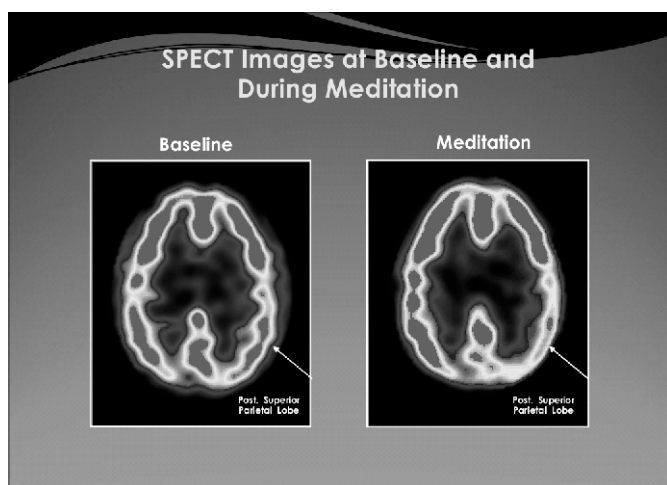
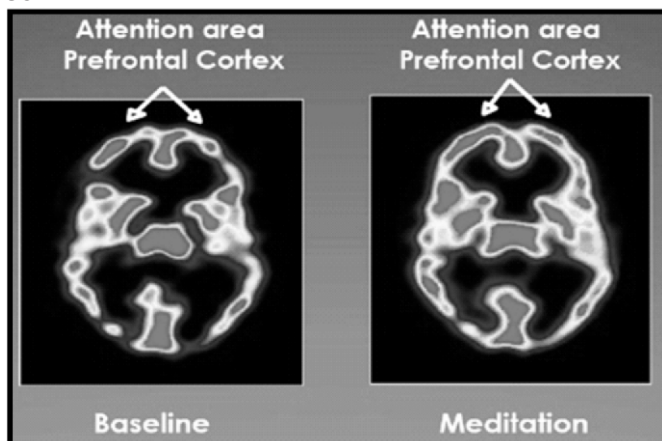
Spiritual path is the final path. So ,those who want the permanent bliss , should regularly do **5 spiritual practices** i.e. 1) Do spiritual reading (swadhyaya), 2) attend spiritual discourses (satsang), 3) offer prayers for universal welfare and peace and do chanting with devotion. 4) Do some or other form of penance or austerities eg. fasting, Service of those who are ailing and suffering. 5) Final step is to do **Meditation daily with consistency**. There are various types of meditation techniques. Some of them are Mindfulness meditation, Anapan sati, Vipassana, Patanjala rajyoga, Transcendal meditation, Samayik, pratikraman, Kayotsarga etc. These and such types of meditation techniques help us to achieve highest state of happiness i.e. **Bliss**.⁴²⁻⁴⁴ Meditation is the master key. It allows us to purify and control our thoughts, emotions & desires. It allows us to sublime our ego & attachment. Meditation controls all faulty processes of mind. In addition , It sharpens our brain and improves our cognition & judgment for better. Therefore, we must meditate daily.⁴⁵

Symbolic representation of the SELF



During depth of meditation, blood flow to prefrontal area increases reflecting improvement in cognitive processes while blood flow to parietal area is reduced significantly suggesting improved mental processes,(control of ego, thoughts and desires and improvement in attitude).

SPECT images at Baseline & during Meditation on self



Four noble truths of life of Lord Budhdha :

“That the world is full of sufferings.

That there is a cause of every suffering

That cessation of suffering is possible

If we follow the right path, all sufferings and miseries can be alleviated”

Formula of Happiness:

Stop comparing	Stop expecting	Stop criticizing
Start sharing	Start helping	Start loving
Give & forgive	Enjoy Hobbies e.g. travelling	Enjoy every moment
Learn music, dance, art	Read great books	Be with nature
Nurture relationships	Appreciate people	Thank heart fully
Learn creativity	Count blessings	Follow morals
Do sport activities	Do yoga daily	Do exercise
Do prayers	Do chanting	Meditate daily

In summary, we should remember that it is not easy to find happiness in ourselves, but it is not possible to find it

elsewhere. There is no way to happiness; happiness is the way. The road to success is different from highway to peace, bliss and longevity. As Lord Mahavir used to say often to his main disciple Gautam : Remain alert and aware every fraction of a moment . Watch and guard your every thought , every word that you speak and every action that you do. Thus ,if you really want to be happy, then just be yourself and enjoy inner experiences.

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Current Topic

Common Mental Health Problems During COVID -19 Pandemic

Dr. Himanshu Desai

A new strain of Coronavirus family originated at Wuhan city of China in December 2019. This novel corona virus is highly contagious and in just few months has become a serious threat to human health all over the world .

It is found that that people may experience symptoms of psychosis, anxiety, trauma, suicidal ideation, and panic during outbreaks of communicable diseases .

Problems in people with Mental illness due to Covid 19

1. **Anxiety disorders** : Due to lock down and fear of getting corona infection has increased anxiety related issues in public. Sometime mild symptoms or slightest exposure will create panic like situation.
2. **Obsessive Compulsive Disorders (OCD)**: Obsessive symptoms has increased. Abnormal becomes the new normal for people who have washing compulsions and fear of contamination.
3. **Depressive Disorders** : Due to lock down and migration of workers and other issues there is great effect on routine work and economy. Which eventually produces depression, and which increases preexisting depressive illnesses
4. **Substance abuse** : Non availability of substance sometime produces serious withdrawal symptoms. For some one it is chance to quit their vices.
5. **Psychosis** : Patients with bipolar disorder and schizophrenia type of severe mental disorders are likely to have relapses due to risk in both the availability of regular medication and medication compliance
6. **Suicide** : There was increased suicide rate due to pandemic and lock down. There were different factors responsible for that.

Steps To Reduce The Stress And Improve Psychological Well Being

1. Avoid excessive exposure to news regarding of COVID-19.
2. get reliable information about how to protect yourself, such as the MoHFW.
3. Recognize the things you can control. Take care of your body.
4. Try to do some activities which you enjoy or work on your hobbies to return to your normal life.

5. Try to eat healthy, well-balanced meals, exercise regularly, get regular good sleep and avoid alcohol and drugs.
6. Share your concerns and how you are feeling with a friend or family member.
7. Maintain proper hand-washing and social distancing.

Mental Health of Children During The Pandemic Lockdown

The Pandemic lockdown is not only affecting adults and older people but has also left children and adolescents. It is affecting them physically and mentally which can lead to various problems.

Due to lockdown, all the schools and institutions have been closed. There is a sudden change in the environment of the children who are staying with their parents or any caregiver as their outdoor activities and social interaction with friends have been restricted.

Mental health problems can broadly be fear of infection, irritability , boredom, anxiety, stress, depression, unhealthy sleeping and eating habits, difficulty in attention and concentration. Over use of the social media is also noticed. Which was another major reason for conflict between children and parents.

WHAT CAN BE DONE TO HELP THE CHILDREN?

1. give them clear information about the pandemic to reduce anxiety and fear, discuss and fix up the use of social media and news for them and all of the family.
2. Be supportive and empathic to the child.
3. Engage them in different activities like crafts from waste papers, dancing, singing, board games and others to make them calm and relieved.
4. Discuss and make a daily time-table and ask them to follow it regularly. Schedule the study hours, if preferable, during their school timings and study place.

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5. Engage your child in some physical activities and exercises .
6. Encourage your child to learn some new activity daily like cooking, learn musical instruments, reading new books, cleaning, gardening, watering plants, serving food, cleaning utensils and others.
7. Family time should be given. Manage some family interacting activities like playing indoor games and spending some hours chatting with one another.
8. Allow them to be in touch with friends or classmates through phone or online media for fix time.
9. If the child comes to know about any upsetting news, reassure them and try to keep them away from such things.

Geriatric Mental Health During COVID 19 Pandemic

The infection can occur to all age group but elderly are at a higher risk. In this population loneliness, isolation, is already prevailing. The mental health problem may increase in elderly due to social isolation and various medical issues, quarantine and loss of follow up for medical and mental illness.

Pandemic creates issues such as: fear of contracting the infection (for self and family members), fear of quarantine or hospitalization, death (of oneself or family members), anxiety related to day to day activity, regular health check up visits and worries about family members living far away. Sleep and appetite problems seen due to absence of physical inactivity during the lockdown.

Family Dynamics During Lockdown

COVID 19 Pandemic is a form of external stress for couples and families specially for those who are more severely affected (e.g. those who develop the disease, become unemployed, experience major financial losses).

But not everything is gloomy. The increased time and involvement of the family members in day to day activities has given a new found living experience for the children of this age . Children learn to cook from mothers, fathers spending more time with their children is new experience. Communication among distant family members has grown with different video calling apps. Families use to play different games like tambola, ludo online to gather.

Domestic Violence During COVID 19 Lockdown

Domestic violence is an indoor crime which usually happens in an intimate relationship such as dating, marriage, cohabitation or a familial relationship and hence it is also termed as intimate partner violence. In India, 70% of women are victims of domestic violence

Domestic violence a global crisis

In Spain, emergency number for domestic violence received 18% more calls in the first two weeks of lockdown. And was increased to 270% with the launch of a WhatsApp service for women trapped at home since lockdown began. ---Reuters

The French police reported about 30% rise in domestic violence.

Calls to a national domestic abuse helpline rose by 49% and killings doubled weeks after lockdown in United Kingdom. --- BBC news

Lockdown & domestic violence: India

Lockdown in India has been no different; India's national commission for women on Friday said it registered 587 complaints of domestic violence from March 23 to April 16 which was a significant more than the 396 complaints received in the previous 25 days.

Why domestic violence increased during covid19 pandemic?

The main reason here was the state of lockdown which lead to crisis in many sectors of life leading to increased irritability.

1. Financial crisis:
2. Difficulty in accessing the substance had lead to the rise in irritability among the perpetrators.
3. Confinement into small space has also lead to invasion of personal space which has lead to continuous locking into the argument.
4. Reduced job opportunities have further lead to increased irritability among perpetrators.

Health Care Worker's Mental Health and well-being during Covid pandemic

During any crisis , disasters and outbreaks, all individuals-front line warriors, including health care workers may be affected emotionally and physically.

Facing this critical situation, health care workers are at risk of developing psychological distress and other mental health symptoms.

The ever-increasing number of confirmed and suspected cases, overwhelming workload, depletion of personal protection equipment, widespread media coverage, lack of specific drugs, and feelings of being inadequately supported may all contribute to the mental health burden of these health care workers.

A cross-sectional survey conducted by J Lai et al. 2020 in Wuhan, China, and enrolled 1257 respondents and revealed a high prevalence of mental health symptoms among health care workers treating patients with COVID-19 in China. Overall, 50.4% had depression, 44.6% had anxiety, 34.0% had insomnia, and 71.5% had distress of all participants.

Steps for prevention:

Take proper self-care. Do activities which promote your emotional, physical, relational, and spiritual/religious wellness. Maintain structured routine; ensure breaks and a proper sleep hygiene; be in touch with relatives/friends regularly; spend time for rejuvenation by doing activities and hobbies which are relaxing and not related to work. Do exercise regularly and having a healthy diet. Do pranayama, Yoga, and practice relaxation exercises.

Mental Condition of Family And Person With COVID Diagnosis

When a person himself/herself is diagnosed as COVID positive, then he may undergo several types of psychological disturbance.

- Emotional instability
- Increased anxiety, worries for the future, Panic Attacks.
- Depression and agitation.
- Tension, guilt of spreading, fear of infection to family members, and anger for one's self for not taking enough precautions, Irritation and other's blames.
- Frustration, confusion, and inability to take a decision.
- Unable to maintain a daily routine.
- Difficulty in communication.

General Principles On Dealing With Mental Health Problems During The Pandemic

Understanding that we are not alone. Yes, it is a pandemic. All most all people around the globe have been affected, Eat well and Drink well, Exercise and Maintaining Daily Routine, Learn to handle the Isolation, Rejecting the false news, Managing Health Anxiety Symptoms, Be a support to others.

Case Report

An Unusual Presentation of Desquamation at Birth

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Keywords : Neonatal Desquamation, Neonatal Blistering Disorders, Incontinentia Pigmenti

ABSTRACT

Background : Incontinentia Pigmenti is a rare, X-linked dominant genodermatosis with dermal, ocular, neurological and dental anomalies. **Case Characteristics :** A female newborn presented at birth with excessive desquamation turned out to have Incontinentia Pigmenti. **Message :** Desquamation at birth is an unusual presentation of IP.

INTRODUCTION

Incontinentia Pigmenti (IP; OMIM#308300) is a rare X-linked dominant multisystemic genodermatosis that is usually lethal in males before birth. It occurs in approximately 0.0025% cases at birth. [1] It is characterized by cutaneous, neurologic, ophthalmologic, and dental abnormalities.

CASE REPORT

A female child, born through LSCS, presented at the time of birth with excessive desquamation. Considering it as a variant of normal physiological neonatal desquamation, a dermatologist's opinion was taken. The baby presented on 9th day of life at the Paediatric OPD with neonatal physiological jaundice. On examination, the baby was found to have blistering lesions of the skin of trunk, limbs, back and buttocks but the face and upper limbs were spared. These blisters appeared in crops and did not follow any dermatomal distribution. They burst on their own without any discharge and hyperpigmented verrucous skin lesions were left behind. This process continued for over a week. The child was otherwise asymptomatic. Other than having skin lesions, there were no systemic features of infection/inflammation. Sepsis screen was negative. There was no family history of similar complaints, including her elder sister. The antepartum and Postpartum period of the mother was also uneventful.

Hence the following differentials of Neonatal Blistering Diseases were arrived upon: 1) transient pustular melanosis, 2) cutaneous mastocytosis, 3) neonatal pemphigus and 4) Incontinentia Pigmenti. As amongst these, the prognosis of IP was worst, a CNS and

Ophthalmological screening was done. She was found to have bilateral abnormal retinal vascularisation by 1 month age, more in right eye for which intra-vitreous Anti-Vegf was given and Laser treatment had to be performed subsequently. An MRI at 3 months age revealed no abnormalities. At about 9 months of age, she developed febrile Generalised tonic-clonic convulsions followed by multiple episodes of unprovoked GTC convulsions. Hence the suspicion of IP grew stronger. So she was subjected to further investigations.

A skin biopsy, at 1 year age, was suggestive of mild papillomatosis, mild pigment incontinence and occasional dyskeratotic cells. The NEMO gene deletion test for IP turned out to be positive.

Currently her development is normal for age, vision is preserved and skin shows classical hyperpigmented whorls.

DISCUSSION

About 75% cases of IP are sporadic occurring by a denovo genetic mutation, the deletion produces loss of IKBKG exon, causing an alteration in nuclear factor kappa light (NF- κ B) essential modulator gene located at Xq28.[2] The clinical evolution of the skin lesions has 4 stages: 1) vesiculobullous lesions in a linear pattern on erythematous area distributed in Blaschko's lines occurring in neonatal period; 2) verrucous hyperkeratotic lesions extending for about 4 weeks; 3) hyperpigmented skin lesions; and 4) hypopigmentation and skin atrophy.[3] Diagnosis is achieved by one major and two minor criteria. The major criteria are: Neonatal vesicular rash feature, typical lesions of hyperpigmentation with distribution along the lines of Blaschko and hypochromic

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and atrophic linear lesions in extremities. [4] The minor criteria include neurological (seizures, motor impairments), ophthalmic (optic atrophy, blindness) and dental abnormalities (hypodontia, partial anodontia, delayed eruption, etc). Skeletal and nail involvement have been noted in few patients.

There is no treatment for this disorder and management of the patient involves multidisciplinary medical team to improve the quality of life of the patient and Genetic counselling of the Parents.

In a case like this, we may miss the condition on initial presentation. But a regular and religious follow up of the patient, along with keeping the major disabling outcomes in mind and screening for the same, led to an early intervention for visual presentation in this child and an anticipated development of seizures led to early neurological treatment initiation for the child.

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CASE REPORT

Low Carinal Tumor & Ventilatory Management : An Anesthetic Challenge

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Keywords: Carinal Tumors, Apneic Ventilation

ABSTRACT

Surgical resection of carinal tumors is an anesthetic as well as surgical challenge, which requires meticulous planning and good interaction between surgical and anesthetic teams for successful outcome. A 30 Yrs old female presented with a history of progressive dyspnea along with hemoptysis since 2 yrs that aggravated from last 6 months posted electively for carinal mass biopsy along with resection. Clinical examination revealed no air entry on left side & slightly decreased air entry towards right side. CT scan of chest revealed 19×15mm carinal mass causing complete obstruction of left main stem bronchus & partial obstruction of right main stem bronchus p/o bronchial carcinoid. Patient was managed with Apneic ventilation technique along with intermittently EtCO₂ monitoring done during mask ventilation. Our aim was to maintain patent airway, adequate oxygenation and ventilation with readiness to deal excessive bleeding. We allowed just partial resection biopsy as tumor was of bleed on touch variety. Patient was managed successfully with vigilant actions to abandon the procedure timely with good postoperative outcome.

INTRODUCTION

Primary tracheal tumors are rare with an estimated incidence of 2.7 new cases per million per year. The trachea, main stem bronchi, bronchus intermedius & lobar bronchus make up the central airway. Disorders of central airway leads to nonspecific symptoms such as cough, dyspnea, stridor, tachypnea, & hemoptysis followed by progressive airway obstruction thus necessitating treatment.

Anesthetic technique include various applications such as fiberoptic intubation, jet ventilation, apneic oxygenation, general anesthesia with or without neuromuscular blockade, one lung ventilation, ECMO and CABG. Since airway is shared by both surgeon & anesthesiologist during tracheal resection, it is imperative to maintain ventilation, while allowing free surgical access at the same time. It is therefore important to anticipate problems & formulate airway management options in the preoperative period for successful perioperative outcomes.

CASE HISTORY

A 30 Yrs old female weighing 54kg presented to ENT department of our hospital with a history of progressive dyspnea along with hemoptysis [on & off episodes] since 2 yrs that has aggravated within last 6 months. The patient's medical history, surgical history & family history were non significant.

EXAMINATION

Vital signs were normal.

The oxygen saturation as measured by the pulse oximetry was 96% on air.

RESPIRATORY SYSTEM

Auscultation of chest revealed no air entry on left side & slightly decreased air entry towards right side.

The airway was evaluated as MALLAMPATI grade I along with adequate mouth opening and neck movements.

INVESTIGATION

All routine investigations were normal.

ABGA revealed PaO₂ of 88.4 mmHg, PCO₂ 28.1mmhg, PH-7.46, HCO₃-24 on room air with SpO₂ 96%

Preoperative PFTs revealed obstruction ventilation defects with reduced vital capacity, & flow volume loops demonstrated flow limitation during both phases of respiration.

CT scan of the thorax revealed a well defined [19cm×15mm] lobulated homogeneously enhancing hyperdense lesion at carinal region causing complete obstruction of left main stem bronchus & partial obstruction of right main stem bronchus p/o bronchial carcinoid.

Preoperative fiberoptic Bronchoscopy done under sedation confirmed a polypoid mass seen at lower end of trachea which partially obstructs the left main bronchus

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that permits air due to dynamic obstruction & lesion bleeds on touch.

PREOPERATIVE ADVICES

Patient received a course of broad spectrum antibiotics ,bronchodilator therapy and nebulization preoperatively.

CONSENT taken with ASA –V with post op ventilatory support.

PREPARATION

All mandatory monitors attached.

As a premedication, Inj Glycopyrrolate [0.2mg] , Emset [4mg] , Dexona [8mg] and Hydrocortisone [100mg] given intravenously .

PLAN OF ANESTHESIA was APNEIC VENTILATION

Patient was preoxygenated with 100% O₂ for 3-5 minutes with the help of Bain's circuit at flow of 8-10 L/Min . Patient taken in plane of anesthesia with the help of inhalational agent SEVOFLURANE . Afterwards Check ventilation done followed by Inj PROPOFOL 75 mg iv and lastly Inj SUXAMETHONIUM 75 mg given iv. Maintenance of anesthesia was done by giving intermittent dose of Inj PROPOFOL [10 mg] and Inj SUXAMETHONIUM [20mg].

Surgeons tried for excision biopsy of carinal mass [partial excision was done]. During procedure, SpO₂ reached upto 70%. Even after intermittent suction of surgical site,mask ventilation was not possible. Therefore, SURGEON'S REQUESTED TO ABANDON THE PROCEDURE. Endotracheal intubation was done with 6.5 mm portex, cuffed ET tube . Endotracheal suction was done which revealed excessive bleeding. Then nebulization with duolin, budesonide, adrenaline was done. SpO₂ reached to 96 % with good spontaneous efforts of respiration and consciousness , endotracheal tube removed.

On auscultation, air entry increased on left side along with crepitations.

Patient was shifted to PACU to monitor hypoxia and respiratory distress and advised for head up position with oxygen via facemask [FiO₂-0.5] along with nebulization. Patient was advised to continue steroid 8 hrly. Postoperative ABGA and Chest X ray [PA] also advised. Histopathology revealed carcinoid type of tumor. Further referred for cardiothoracic intervention.

DISCUSSION

Most of primary tracheal tumors are malignant, generally squamous cell or adenoid ,cystic carcinomas which comprises of 75% of all the tumors of trachea.

Anesthetic management for tracheal resection is unique because of narrowed airway diameter and the challenge of maintaining ventilation during the perioperative period. Anesthesiologist involved in the perioperative care of patients with central airway obstruction must be aware of

techniques that allows maximum surgical access to the airway with minimal interference while ensuring adequate ventilation and oxygenation .

Various techniques have been described to manage patient with carinal mass which includes apneic oxygenation , high frequency jet ventilation , fiberoptic bronchoscopy ,rigid bronchoscopy with side arm ventilation and ECMO. IF REQUIRED FOR COMPLETE RESECTION , one lung ventilation or CABG is must .

CHALLENGES TO ANESTHESIOLOGIST ARE compromised airway, sharing of airway, management of hypoxia , hypercarbia, obstruction of ventilation due to bleeding and spillage, bronchospasm and laryngospasm.

Surgeon planned for excision biopsy and resection of the mass with rigid bronchoscopy along with side arm ventilation.

During the procedure, bleeding started ,mask ventilation could not help to manage hypoxia .Therefore endotracheal intubation done along with vigorous suctioning. We requested surgeons to abandon the procedure as bleed on touch mass can produce can't ventilate scenario.

These types of patients should be operated at well equipped tertiary centre with facility of ECMO/CABG.

CONCLUSION

Primary carinal tumor of the trachea is a challenge both to the surgeon and more so to the anesthesiologist,who has to ensure a patent airway and effective gas exchange throughout the procedure . Good communication, coordination and cooperation between the surgeon and the anesthesiologist are mandatory throughout the perioperative period for the successful outcome. However, the anesthesiologist should have the knowledge of other airway management techniques and be ready with an alternative plan in case of failure.

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Case Report

Stiff Leg Syndrome : A Case Report

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Keywords : Stiff leg syndrome, Stiff person syndrome, Anti GAD positive

ABSTRACT

Stiff person syndrome (SPS) is a rare disorder characterized by progressive fluctuating muscular rigidity and spasms. Glutamic acid decarboxylase (GAD) antibody is primarily involved in the pathogenesis of SPS. Stiff leg syndrome (SLS) is a newly emerging entity considered as focal form of SPS in which symptoms are confined to distal limb usually the leg although sometimes this progresses to involve the axial musculature as well. Here we report a case of stiff leg syndrome confirmed by electromyography with high serum level of GAD antibodies.

INTRODUCTION

Stiff person syndrome (SPS) is characterized by axial rigidity, progressive stiffness, and spontaneous, reflex or action induced painful spasms of the paraspinal, abdominal and occasionally proximal leg muscles associated with a lumbar hyperlordosis. The symptoms are progressive and may fluctuate.¹ Most patients with classical SPS have antibodies against glutamic acid decarboxylase (GAD), but there are also paraneoplastic variants, commonly secondary to breast cancer or small cell lung cancer. Both classical and paraneoplastic SPS have an autoimmune basis and are strongly associated with other autoimmune diseases.² During the last few years, several cases with SPS were reported whose symptoms were confined to one lower limb. The condition was named as the "stiff leg" or "stiff limb" syndrome (SLS).³ We describe a patient with signs and symptoms closely resembling those seen in cases of SLS.

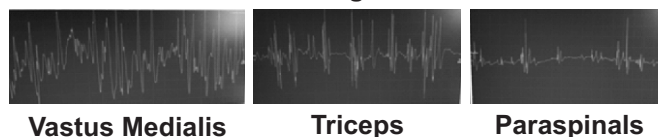
CASE REPORT

A 38 year female known case of epilepsy presented with tightness and painful spasms in left lower limb with difficulty in walking since 8 months which was progressive in nature. Symptoms persisted throughout the day and relieved in sleep. There was worsening of her condition over the last few months resulting in a considerable difficulty of standing up and walking and she developed fixed posturing of her left lower limb. There was no past history of diabetes, or other auto-immune diseases. The family history was unremarkable. On examination the left lower limb were rigid and had genu recurvatum, movements were severely limited and painful, and strength could not be assessed because of rigidity and

spasms. Power in other limbs was normal. No paraspinal or axial contractions were palpated. Sensory examination was normal. Deep tendon reflexes were normal. She had an intact intellect and there were no other neurologic abnormalities.

Results of routine investigations including complete blood count, renal and liver function test, viral markers, ESR and CRP were normal. Glycosylated hemoglobin and thyroid function test was normal. Cerebrospinal fluid examination was unremarkable. MRI brain with whole spine screening was also done which was normal. Electromyography revealed spontaneous continuous MUAP discharges (figure 1) in biceps, triceps, paraspinals, Vastus Medialis, Tibialis Anterior, Gastrocnemius. Her paraneoplastic profile, anti amphiphysin was negative and antiGad antibody was positive. Female tumor markers were negative and CT thorax plus abdomen was done which was normal. We again did her EMG after giving IV diazepam which abolished continuous MUAP discharges in biceps and triceps. She showed gradual improvement and diminished pain by treatment with diazepam, baclofen, steroids and plasmapheresis.

FIGURE 1 EMG showing spontaneous continuous MUAP discharges



DISCUSSION

Stiff-person syndrome is an autoimmune disease, and the anti-GAD antibody is primarily involved in the pathogenesis of SPS. Glutamic acid decarboxylase is the

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rate-limiting enzyme for gamma amino butyric acid (GABA) synthesis. Because GABA is the major inhibitory neurotransmitter in the central nervous system, it has been believed that the dysfunction of GABAergic pathways is involved in the pathogenesis of SPS.² A proposed mechanism for the development of stiffness is that the loss of GABAergic input into motor neurons produces tonic firing at rest and leads to excessive excitation in response to sensory stimulation.⁴ This theory was supported by the presence of high-titer anti-GAD antibodies in more than 85% of patients and the reduction in brain GABA.2 SPS affects twice as many women as it does men.⁵ In patients positive for anti- GAD antibodies, there was a strong association with other organ-specific autoimmune diseases, such as insulin-dependent DM, hypothyroidism, Grave's disease and pernicious anemia.² It is also known that approximately ten percent of GAD antibody-positive SPS patients have epilepsy⁴ and, conversely, that the presence of anti-GAD antibodies in epilepsy, especially TLE, is not a rare condition.⁶ In GAD antibody-positive patients with epilepsy, there is a significant increase in the frequency of inhibitory postsynaptic potentials in hippocampal neurons, which may suggest that anti-GAD antibodies specifically interfere with the GABAergic synapses of the hippocampus, a critical site in the pathogenesis of TLE.^{2,6}

Diagnostic criteria of SPS by Dalakas⁷	
1.	Episodic stiffness of the muscles mostly involving axial muscles leading to fixed deformity.
2.	Episodic muscle spasms, triggered by sounds, stress or touch.
3.	Continuous co-contraction of agonist and antagonist muscles, confirmed by electromyography. (subsides with diazepam)*
4.	An absence of other neurologic disorders which cause stiffness and rigidity.
5.	Presence of serum anti-GAD antibodies or amphiphysin autoantibodies .

*Not a part of Dalakas criteria but commonly included in diagnostic criteria.

"SLS" is a variant of "stiff person syndrome" (SPS) which is a rare auto-immune neurological condition first described in 1956 by Moersch and Woltman.⁸ It is usually GAD autoantibody-negative and only partially respond to GABAergic treatment. Other variants include progressive encephalitis with rigidity and myoclonus (PERM), paraneoplastic variants associated with anti-amphiphysin or - gephyrin antibodies.⁹ Current therapeutic strategies for SPS are divided into two categories: the first category

Antibodies	Better treatment response¹⁰
Anti- GAD positive	IV immuoglobulins
Anti amphiphysin antibody	Steroids, plasmapheresis
GABARAP antibody	IV immuoglobulins
Glycine R alpha 1 antibody	Better response to immunotherapy than GAD positive

includes GABA- enhancing drugs known to interact with pharmacologic mechanisms underlying the production of muscular rigidity, and the second category includes immunomodulatory agents.²

CONCLUSION

In conclusion, we present a case of stiff leg syndrome confirmed by electromyography with positive anti-GAD antibody. Stiff leg syndrome is a newly emerging entity confined to distal limb usually the leg may progress to involve the axial musculature. Though stiff leg syndrome is usually GAD autoantibody - negative but clinical suspicion and the measurement of anti - GAD antibody are essential for the diagnosis. Early diagnosis and appropriate treatment are important to improve the prognosis.

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