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INDEX

Original Article

INFESTATION OF WORMS IN ADULT PATIENTS WITH ANAEMIA

Lubna Adnan, Rizwan Ali Talpur,
Rabnawaz Sathio, Muhammad Wasif Saleem

ABSTRACT

OBJECTIVE: Main objective of this study was to see infestation of worms in adult patients with anaemia.

METHODOLOGY: This was cross-sectional, descriptive study conducted at Department of Pathology, Chandka Medical College, Larkana for the period of 12 months (November 2019 to November 2020). Stool analysis for anaemic patients and controls was performed to detect infestation of worms. Data was analyzed using SPSS 24.0

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CONCLUSION: This study explored good frequency rate of worm infestation in association with anaemia. Our results were mostly in supported by results of other studies. Higher authorities should take more serious steps in prevention of such parasitic diseases by conducting surveys, and to control the spread of parasites.

Keywords: Worms infestation, anaemia, adult population, stool examination.

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INTRODUCTION

Anaemia is described as decreased levels of haemoglobin, caused by acquired or genetic changes in number or shape of the red blood cells. [1] Many causes are observed which cause anaemia including nutritional deficiencies, gastrointestinal bleed, genitourinary bleed, malabsorption syndromes, medication, increased destruction of blood due to acquired or genetic causes and inflammatory diseases. [2]

In developing countries, infestation by parasitic worms or Helminths is common aetiology. They cause anaemia by gastrointestinal bleeding or cause decreased micronutrient absorption. [3-4]Helminths which are transmitted from the soil have been found to cause between 5-39 million morbid lifestyles, leading to reduced psycho-physical growth and anaemia. [5] Infestation by worms has been associated with poor quality of life; therefore, it is more prevalent in developing and under-developed countries. [6]

The prevalence of infections by intestinal Helminths is observed low (e.g., 5.3%) as compared to protozoan infections (e.g., 16.7 – 18%) globally. [7]More than 1 billion individuals residing in under-developed countries or in areas with no or less availability of clean and sterile water are infected with intestinal Helminths. [8] The ratio is also high in counties with over-crowding e.g., China, India, and Pakistan etc. Globally more than one billion populations are affected with Ascariasis and in India alone; more than 100 million individuals are infected. It is also postulated that over 20 million individuals are infected with Ascariasis in Pakistan. [9]

Additionally, Trichuris trichiura (whipworm), Necator americanus (hookworm) and Ancylostoma duodenale (hookworm) are also common. [10] Guidelines regarding these worm infestations and their management had been published by World Health Organization (WHO) in 2011. They recommended the use of anti-helminthic drugs (e.g., albendazole or mebendazole) should be used for the management and prevention of worm infestations in endemic areas. [11] Association of anaemia with worm infestations is studied limitedly; therefore, we designed this study to observe the presence of anaemia in patients with worm infestations in adult population.

PATIENTS AND METHODS

This was a cross-sectional, descriptive study conducted at Department of Pathology, Chandka Medical College, Larkana. The study was carried out for the period of 12 months (November 2019 to November 2020). 400 stool examinations were performed. A total of 185 patients were selected for the study. Patients aged between 18 to 50 years, both males and females were included using non-probability consecutive sampling. Patients with bleeding disorders, haemolytic anaemia, aplastic anaemia, leukaemia/lymphomas were excluded from the study. Cut-off value for anaemia was 13.5 g/dL for males and 11.5 g/dL for females. Patients

were labelled as worm infested if stool examination was positive for any cyst, ova eggs and/or worms. After getting approval from Ethical Committee, the process was explained, and informed consent was taken from all patients. The stool examination was performed by Pathologist in the laboratory. All data was recorded and analysed using SPSS 24.0. Means and standard deviations were calculated for quantitative variables e.g., haemoglobin levels, age, and frequencies etc. Chi-square test was observed to see the correlation of anaemia with worm infestation.

Table 1; Stool Examination Findings (n=185)		
Stool Examination	**Number**	**Percentage**
Cysts	65	35.71%
Ova	39	21.08%
Eggs	21	11.35%
Larvae	42	22.70%
Worms	18	9.72%
Ancylostoma duodenale	3	16.66%
Ascaris lumbricoides	11	61.11%
Trichuris trichura	3	16.66%
Taenia saginata	1	5.55%

Table 2: Distribution of Worm Infestation with Reference to Age				
Worm Infestations	18-30 Years	31-40 Years	40-50 Years	Total
Yes	87	62	36	185
No	92	66	57	215

Table 3: Presence of Anemia in Various Stages of Worm Infestations (n=185)		
Stool Examination	Anaemia	
	Present	Absent
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DISCUSSION

Infestation of worms is major pandemic global health issue, which affect a large population. Additionally, as compared to developed countries, it is more common in developing countries. [12-13]Among all parasitic infections, Ascaris has more importance because of its high prevalence rate. As per estimation, it is considered that more than one billion individuals are affected by this parasite globally. Likewise, the prevalence of Ascaris is over 140 million in India, over 86 million in China and over 21 million in Pakistan, making it very

RESULTS

A total of 400 patients were selected for determining the worm infestation frequency in adult patients with anaemia. Out of 400 patients, 179 (44.75%) were aged between 18-30 years, 128 (32%) were between 31-40 years, and 93 (23.25%) were between 40-50 years. The mean age of patients was 28.44 ± 3.23 years. Male to female ratio was 1:2. The worm infestation frequency was 46.25%. Anaemia was seen in 47 patients (Tables 1 essential health concern in these countries. [14]Due to these problems, this study was conducted to see its association with anaemia. The worm infestation frequency in our study was 46.25%. Additionally, the infestation by various worms included Ascaris lumbricoides (61.66%), Ancylostoma duodenale

CONCLUSION

This study explored good frequency rate of worm infestation in association with anaemia. Our results were mostly in supported by results of other studies. Higher authorities should take more serious steps in prevention of such parasitic diseases by conducting surveys, and to control the spread of parasites.

Conflict of interest: None.
Funding Source: None.

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Authors Contribution	
Rizwan Ali Talpur	Conception of study design, acquisition, analysis, and interpretation of data.
Rabnawaz Sathio	Drafting and methodology, data interpretation
Muhammad Wasif Saleem	Analysis and interpretation of data for work

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In a study by Mona et al. in 2003, it was seen that worm infestation frequency in children of Abbottabad was higher (86%) than our study. The reason behind this could be selection of population which was limited to paediatric group. [12]Another study in Kashmir revealed worm infestation in 7.18%. The dominant parasite was Ascaris (68.3%), followed by Taeniasaginata and Trichuristrichura (4.6%). [13]Alam et al. also discovered the frequency of 39%. [14]

Globally, the prevalence rate of worm infestation is variable in many countries. In Afghanistan, worm infestation prevalence was 47.2%, although in Bangladesh and Nepal, the frequency was 53% and 66.6% respectively. [15]

In our study, Taeniasaginata was only found in one patient with worm infestation. This finding was somewhat similar to other studies including Azad Kashmir (3.45%), Vehari (0.4%), and Kashmir province in India (4.6%). [12-13, 16]The reason behind such frequency is the use of beef kababs, which is basically a partially cooked meat of cow, and is commonly used of individuals residing in these areas. As Taeniasaginata cysts are seen in muscles of cow, hence they are found in increased frequency.

In Swat, Khan et al. performed a study on various worm infestations in a study group. He observed that Ascarislumbricoides was the commonest worm found in 39.8%, followed by Trichuristrichura (19.1%), and Taeniasaginata (19.1%). He also observed other parasites including Giardia species, Enterobiusvermicularis, and Hymenolepis nana, although other parasites were not found. [17]

There were some limitations with our study. Firstly, the sample size was not large, so studies on large scale are needed to see more accurate data. Secondly, the frequency of other worms was not observed in the area. Finally, severity of anaemia with type of worm infestation was not seen.

CONCLUSION

This study explored good frequency rate of worm infestation in association with anaemia. Our results were mostly in supported by results of other studies. Higher authorities should take more serious steps in prevention of such parasitic diseases by conducting surveys, and to control the spread of parasites.

worm infestation

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10.	Is the sample (if applicable) adequately described? and Methods clarified?	Yes	No
11.	Are the data collection instruments, including questionnaires (if applicable) clearly described?	Yes	No
12.	Is the research design (if applicable) adequate to achieve the objective of the study?	Yes	No
13.	Are the statistical tests justified?	Yes	No
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(1) Introduction section needs to be shortened.

(2) Phase clearly defined conclusion in the abstract section.

Comments for Editor: Approved after revision of Introduction and conclusion.

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Comments For Authors

Please Kindly Rewrite Conclusions in Abstract.

Comments for Editor: Appeared from conclusion.

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17. Do the results address the aims of the study?	Yes	No
18. Does the discussion explain the findings in comparison with other data available?	Yes	No
19. Conclusions: Are the conclusions appropriate?	Yes	No
20. Does the write up retain balance and give sufficient weightage to contrary viewpoints?	Yes	No

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21. Will this manuscript add to existing knowledge in this field?	Yes	No
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8.	Is the review of literature comprehensive and relevant?	Yes ✓	No
09.	Are the aims and objectives clearly specified	Yes ✓	No
10.	Is the sample (if applicable) adequately described? and Methods clarified?	Yes ✓	No
11.	Are the data collection instruments, including questionnaires (if applicable) clearly described?	Yes ✓	No
12.	Is the research design (if applicable) adequate to achieve the objective of the study?	Yes ✓	No
13.	Are the statistical tests justified?	Yes ✓	No
14.	Does it require consultation by a statistician?	Yes ✓	No
15.	Are the tables (if applicable) clear and titled?	Yes ✓	No
16.	Are the tables, figures, photographs useful, relevant (if applicable)	Yes ✓	No
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18.	Does the discussion explain the findings in comparison with other data available?	Yes ✓	No
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Original Article

GESTATIONAL DIABETES AND CONGENITAL ANOMALIES

Pushpa Goswami, Koshila,
Geeta Bai, Chetan Das

ABSTRACT:
Objective: To determine the association of congenital anomalies with gestational diabetes mellitus (GDM). **Study setting**: Department of Pediatrics of Civil Hospital Mirpurkhaas, Sindh.
Methods: infants (babies below 12 months of age) born with congenital anomalies were included in the study subsequent to informed consent from their parents. Sampling technique was non probability purposive sampling. Complete history was taken with reference to age, weight of baby, the past intake of drug during pregnancy, family history of congenital abnormalities and about presence/ absence of gestational diabetes mellitus (GDM) during pregnancy. Data analyzed on IBM, SPSS version 21.0. P-value of <0.05 was reflected as significant.
Results: Mean age of baby was 0.15 years±0.48 born to GDM mothers(n=82) while mean age of babies born to non GDM mothers(n=63) was 0.17±0.33 years. Congenital anomalies compared between mothers with gestational diabetes mellitus (GDM) and the mothers without having GDM (n=63). Congenital anomalies revealed significantly related to presence of GDM in mothers, X^2=24.74, d=13 and p value=0.025.
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KEY WORDS: congenital anomalies, gestational diabetes mellitus.

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INTRODUCTION

Gestational diabetes mellitus (GDM) is the most important wellbeing concern in Asia. Additional attention should be given to those Asian ladies who are more prone to develop GDM i.e., with the past of GDM in previous pregnancy, macrosomia or congenital anomalies.[1]
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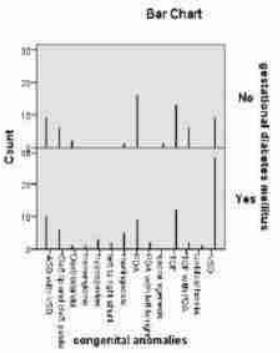
	sacral agenesis	N(%)	0(.0)	1(.7)	1(.7)
Total		N(%)	82(56.6)	63(43.4)	145(100.0)

Figure No: 1: GDM and rate of congenital anomalies



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Abu-Sulaiman RM and SubaihB[15] in their study revealed various echocardiographic finding in infants; i.e., patent ductusarteriosus (70 percent), Hypertrophic cardiomyopathy (38 percent), patent foramen ovale (68 percent), pulmonary stenosis (01%), TOF(1%), VSD(04 percent), mitral valve prolapse (02 percent), and atrial septal defect (05 percent). Programs should be adopted in our population to screen such anomalies prior to birth of baby. Gestational diabetes mellitus (GDM) is a teratogenic condition for the fetus. Congenital malformations among the newborns of diabetic mothers are 5-times greater than general population. Tetralogy of fallot is a common form of congenital heart defect. We would like to report a diagnosed case of fetal tetralogy of fallot based on findings including a ventricular septal defect (VSD), aortic valve overriding, bidirectional shunt via VSD in aortic long axis view, in addition to anomalies on the three-vessel view with small pulmonic annulus in a high risk mother with GDM with a gestational age of 19 weeks. It appears that although the risk of fetal cardiac malformations may be highest in women with GDM, all pregnancies of pre-gestational diabetes and GDM are at increased risk, given this, regular fetal echocardiographies should be consider in women with GDM.[16] Mothers having GDM are more prone to have babies with congenital anomalies. Further broad spectrum studies are required to explore the underlying mechanisms.

CONCLUSION

Congenital anomalies are significantly related to GDM mothers.

Conflict of interest: None.

Financial Support: None.

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Authors Contribution	
Dr. Pushpa Goswami	Conception of study design, acquisition, analysis, and interpretation of data.
Dr. Koshila	Drafting and methodology, data interpretation
Dr. Geeta Bai,	Analysis and interpretation of data for work
Dr. Chetan Das	Data Collection

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gestational dm and congenital anamalies

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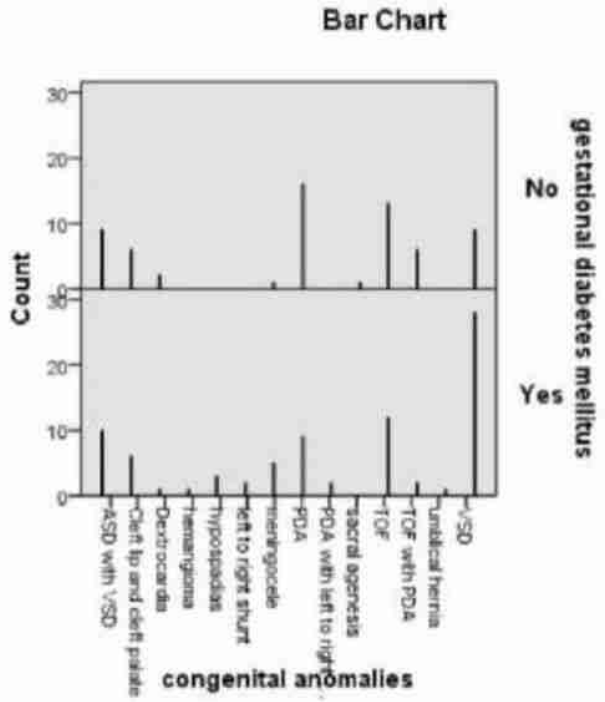

Figure No.1: GDM and rate of congenital anomalies

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Both the pre-gestational diabetes mellitus and GDM groups had notably higher odds of cyanotic cardiac disease, macrosomia and any birth defect than controls. The pregestational diabetic group had higher odds of cleft lip and palate, cleft palate alone, hypospadias and limb reduction defect. [12] Fetus of diabetic mothers found with increased interventricular septum thickness but point to be focused that there were no significant differences in the pregestational diabetic and GDM groups ($p > .05$). So, it is worthy for diabetic pregnant women to be screened for diastolic function of their fetus.[13] Hyperglycemic status of mother threats the fetus to augmented oxidative stress, apoptosis, hypoxia, and epigenetic alterations. All offspring are not affected and also not to the identical degree, pregnancy result is affected by mother's diet; and maternal glucose levels modify transcriptional profiles of fetus and so amplify the variation in transcriptomic profiles as a consequence of distorted gene regulation. Aforementioned points support the epigenetic alterations. Maternal hyperglycemia has been considered as tertogenic modifiable factor, explored by animal research models.[3]

Mohsin M, et al. [14] revealed that 18 babies with myocardial hypertrophy and 32 with normal septal thickness, out of total fifty births of gestational diabetic mothers.

Abu-Sulaiman RM and Subaih B[15] in their study revealed various echocardiographic finding in infants; i.e., patent ductus arteriosus (70 percent), Hypertrophic cardiomyopathy (38 percent), patent foramen ovale (68 percent), pulmonary stenosis (01%), TOF(1%), VSD(04 percent), mitral valve prolapse (02 percent), and atrial septal defect (05 percent). Programs should be adopted in our population to screen such anomalies prior to birth of baby.

Gestational diabetes mellitus (GDM) is a teratogenic condition for the fetus. Congenital malformations among the newborns of diabetic mothers are 5-times greater than general population. Tetralogy of fallot is a common form of congenital heart defect. We would like to report a diagnosed case of fetal tetralogy of fallot based on findings including a ventricular septal defect (VSD), aortic valve overriding, bidirectional shunt via VSD in aortic long axis view, in addition to anomalies on the three-vessel view with small pulmonic annulus in a high risk mother with GDM with a gestational age of 19 weeks. It appears that although the risk of fetal cardiac malformations may be highest in women with GDM, all pregnancies of pre-gestational diabetes and GDM are at increased risk, given this, regular fetal echocardiographies should be consider in women with GDM.[16] Mothers having GDM are more prone to have babies with congenital anomalies. Further broad spectrum studies are required to explore the underlying mechanisms.

CONCLUSION: Congenital anomalies are significantly related to GDM mothers.

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Original Article

Anxiety and depression in south east patients with chronic liver disease

Adil Hassan Chang, Hafeez Soomro
Javed Iqbal

Abstract: Background: chronic liver disease patients are more likely to develop anxiety and depression. **Objectives**: to determine the frequency and disease specifics factors associated with depression and anxiety in patients with chronic liver disease.

Methods: This is an cross-sectional study conducted at aims hospital, Hyderabad, Pakistan After approval from the Institutional Review Board (IRB) dated 20/12/20, IRB No. 0137 with the age group of 18 to 60 years old adults attended gastroenterology clinic from the period of January to June 2021.assessment of mental status of the patients by using Depression Anxiety Stress Scale-21 (DASS-21).this scoring system has 21 questions with each part having further seven questions and on the basis of these question we measures the grading of anxiety and depression .the score is ranges from 0-21 score. Patients with score upto 7 shows normal level of depression ,8-9 mild level of depression ,10-13 moderate level of depression ,14- 15 severe depression and score of 25 shows extreme level of depression.

Results: 16.5% of them had moderate depression. There are statistically significant differences between gender, patient education, ascites, child pough classification, comorbid diabetes and mean depression, anxiety and stress scores. Comorbid diabetes and decompensated cirrhosis significantly increase risk of depression by 3.84 and 17.7 folds respectively.

Conclusion: pychaitry symptoms are more common in males , highly educated patients, in diabetes and in advanced liver disease patients

Key factors: depression and anxiety.

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INTRODUCTION

Chronic liver disease (CLD) incorporates a different range of problems, including from liver steatosis (alcoholic and non-alcoholic), infection from hepatitis B and C, cirrhosis to other more uncommon conditions.[1] Because of their higher occurrence and pervasiveness, these afflictions have transformed into a continuously critical general wellbeing matter worldwide.[2] Patients with CLD can present with wide variety of symptoms of anxiety and depression.[3] They can additionally have problems of behavior, personality, sleep and cognitive impairment.[4] Psychosocial stressors are a contributing issue to such horribleness, and include the antagonistic impact of disease diagnosis, against viral treatment, disgrace, also, worries about infection progression or viral transmission. [5] The confirmation about the presence of these manifestations in CLD patients is significant in light of the fact that they have an antagonistic impact upon the sickness course as increase of actual side effects, practical impedance, decreased treatment consistence, and impeded nature of life.[6]

The aims of this study is to determine the frequency of anxiety and depression in Pakistani patients suffering from chronic liver disease and to assess disease-specific factors, contribution of selected Sociodemographic factors for anxiety and depression.

METHODOLOGY

This is an cross-sectional study conducted at aims hospital, Hyderabad, Pakistan after approval from the Institutional Review Board (IRB) dated 20/12/20, IRB No. 0137 with the age group of 18 to 60 years old adults attended gastroenterology clinic from the period of January to June 2021.patients were excluded those have already history of psychiatry disorders ,acute cause of liver disease or liver transplanted patients .total 248 patients were recruited in this study and patients were selected on systemic random techniques ,every 3rd patient with chronic liver disease included in this current study .3 types of questioner were used in this study .the first questioner includes questions about bio data ,etiology of CLD .patients were stratified on the basis of severity of liver disease (no cirrhosis/earl

presence of sign and symptoms of CLD and by ultrasound examination and their severity is assessed

by using Child –Pugh –scoring and their social class was assessed by using El-Gilany et al. questionnaire.3rd part of questionnaire was for the assessment of mental status of the patients by using Depression Anxiety Stress Scale-21 (DASS-21).this scoring system has 21 questions with each part having further seven questions and on the basis of these question we measures the grading of anxiety and depression .the score is ranges from 0-21 score. Patients with score upto 7 shows normal level of depression ,8-9 mild level of depression ,10-13 moderate level of depression ,14- 15 severe depression and score of 25 shows extreme level of depression .

The data was entered and analyzed using IBM-SPSS V-23. The continuous variables were described as Mean ± SD and categorical variables as frequency and percentages. To compare means of two groups, Mann Whitney test (for not normally distributed data) were used. For comparing of more than two groups, Kruskal Wallis test was used for not normally distributed data. To assess the correlation between patients' age and DASS-21 score, Spearman correlation coefficient was used. The level statistical significance was set at 5% ($P \leq 0.05$).

RESULTS

Mean age of the patients in this current study was 43.65 (± 8.01) years ranging from 32 to 60 years and 60.5 are males with majority of them belonging from the rural areas about 65 %.18.1 % of patients are belonging from the highly educated subgroups with 8.9 % are those who are illiterate and 20 % of those who are semi professional in their occupation.

About 39.5, 23.8% of patients had no cirrhosisand thirty seven percent of studied patients (36.7%) had compensated and decompensated cirrhosis respectively with majority of them 70.3% has no comorbid diseases. About 37.1% had child A cirrhosis ,27 % child B cirrhosis and 35 % had child C cirrhosis .as Hepatitis C is more common in Pakistan ,70 % of patients are suffering from hepatitis C in this current study with 10 % only with Hepatitis B cirrhosis .

About 16% of patients were suffering from mild and extreme form of depression with a significant correlation of DAAS score with the duration of disease.There are statistically significant differences between gender, education and mean depression, anxiety and stress score and also with the severity of CLD child B and C cirrhosis, presence of ascities and history of Diabetes that increased the risk of depression by 3.84 and 17.7 folds respectively.

DISCUSSION

Neuropsychological shortfalls in those patients typically incorporate mental disability and Depression. These types of diseases occur due to the accumulation of toxins and neurotoxin molecules that are unable to excrete from the damaged liver with same immunological pattern leads to the depression.[2]

Bianchi et al.[12] in their study of 156 patients with cirrhosis utilizing two surveys (the Beck Depression Inventory and the Mental General Well-Being List) revealed that the mental state of those patients is thoroughly compromised. Sign of depression and psychological stress also, melancholy are related with CP classification.

Qureshi et al. [13] conducted the study in 206 patients and divided these patients into 3 groups Group-I (chronic hepatitis C, n = 95), group-II (chronic hepatitis B, n = 29) and group-III (healthy subjects, n = 82).In this study age, sex and socioeconomic status of the patients were matched instead if frequency of depression measured by Hospital Anxiety and Depression Scale (HADS),found one fifth of patients with moderate depression .our study results also matched with this same study as the majority of patients are males in this current study.[2]

In patients with CLD, the reported incidence of depression and anxiety is about 20 to 70%. A study conducted by Popović et al. [2] reported that 13.9 % patients had anxiety and 62% had depression in CLD patients. Patients diagnosed with Chronic Hepatitis C are had been diagnosed with higher rate of depression. [14]A study conducted by Dwight et al[24], evaluated 50 patients with chronic hepatitis C there study also concluded that 28% had depression and their disability figure is more related to depression then the liver disease.

There multiple factors that is responsible for in patients with chronic hepatitis C or chronic liver disease that includes alteration in brain metabolism, inconsistency and unpredictability of the course of illness, emotional factors, complexity and ambiguity but in our study there is no correlation is found in relation with disease specific characteristics or demographic factors like age, occupation, marital status or cause of chronic liver disease. [15-19]Although comorbidity with Diabetes, Male gender, higher education and severity of liver disease with decompensated cirrhosis is associated with higher rate of depression and anxiety. In our study age has no correlation with depression which is also proved by the other study.[20-22] Male patients had more depression, probably explained by males are financially responsible in their families. On the other hand a study done in china that shows female gender and socioeconomic status are significantly correlated with depression may be due difference in biological and social factors.[23]

Our results also concluded that hepatitis C patients are prone to develop the depression which is also proved with the study conducted by Qureshi et al[13]

and also by Carta et al[25] that demonstrate depressive disorders are not statically different in hepatitis B patients, although indicated that if the patients had combined infection with chronic hepatitis b and c then they had higher rate of depression. To our knowledge it is first study in Pakistan that assess the psychiatry comorbidities in patients with chronic liver disease however this study has few limitation that includes as the depression and anxiety is self report by the patients recall bias could not b excluded, secondly this is an cross-sectional study the causality between psychiatric comorbidities and their correlates could not be identified.

CONCLUSION

The largest percentage of patients with CLD reported psychiatric symptoms (42.7%, 72.6%).and 41.5% self-reported symptoms of depression, anxiety and stress respectively). Presence of comorbid diabetes mellitus and decompensated cirrhosis increase risk of depression by 3.84 and 17.7 fold respectively).

Conflict of interest: None.

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Figure (1) Pie chart showing distribution of the studied patients according to self-reported stress

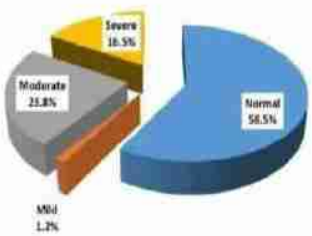

Table (1): Relation between DASS score and demographic characteristics of studied patients

Sociodemographic characteristics	Depressionscore	Test	p	Anxiety score	Test	p	Stress score	Test	p
	Mean ± SD			Mean ± SD			Mean ± SD		
Gender:									
Male	10.43 ± 6.93	-2.053[¥]	**0.04**	10.31 ± 6.83	-2.335[¥]	**0.02**	10.31 ± 6.93	-2.203[¥]	**0.028**
Female	8.48 ± 7.03			8.51 ± 6.75			8.35 ± 6.79		
Residence:									
Rural	10.18 ± 7.06	-1.196[¥]	0.232	10.24 ± 6.79	-1.699[¥]	0.089	10.22 ± 6.91	-1.796[¥]	0.072
Urban	8.99 ± 6.94			8.78 ± 6.85			8.65 ± 6.88		
social class:									
low	9.85 ± 7.44	0.205[*]	0.902	9.78 ± 7.23	0.633[*]	0.726	9.71 ± 7.34	1.521[*]	0.467
middle	9.58 ± 6.74			9.64 ± 6.6			9.62 ± 6.66		
high	8.63 ± 5.11			8.05 ± 4.75			7.84 ± 4.82		
Education:									
Illiterate	7.13 ± 8.75	-2.302[¥]	**0.021**	7.77 ± 8.45	-2.263[¥]	0.024	7.65 ± 8.48	-2.146[¥]	**0.032**
educated	10.02 ± 6.68			9.86 ± 6.56			9.8 ± 6.66		
Occupation:									
Not working	10.6 ± 8.71			11.2 ± 8.13			11 ± 8.33		
Unskilled worker	10.58 ± 8.12	2.709[*]	0.745	10.12 ± 7.54	3.247[*]	0.662	10.12 ± 7.54	3.023[*]	0.696
Skilled worker	9.88 ± 7.85			10.24 ± 8.12			10.34 ± 8.24		
Clerk	9.14 ± 6.85			9.16 ± 6.86			9.05 ± 6.89		
Semiprofessional	9.2 ± 4.15			8.98 ± 3.92			8.98 ± 4.03		
Professional	8.58 ± 7.45			8.21 ± 7.21			7.94 ± 7.16		
Marital status:									
Single	9.29 ± 5.26			9.35 ± 5.19			9.21 ± 5.3		
Married	9.55 ± 7.15	0.761[*]	0.859	9.38 ± 7	1.093[*]	0.779	9.27 ± 7.04	1.729[*]	0.631
Divorced	10.53 ± 6.54			10.56 ± 6.15			10.75 ± 6.38		
Widow	9.51 ± 8.03			9.67 ± 7.82			9.56 ± 6.93		

Authors Contribution	
Adil Hassan Chang	Conception of study design, acquisition, analysis, and interpretation of data.
Hafeez Soomro	Drafting and methodology, data interpretation
Javed Iqbal	Analysis and interpretation of data for work

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depresion and cld

by Article 2

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File name: article_2.docx (16.41K)
Word count: 1576
Character count: 8779

Anxiety and depression south east patients with chronic liver disease

Abstract: Background: chronic liver disease patients are more likely to develops anxiety and depression. **Objective:** to determine the frequency and disease specifics factors associated with depression and anxiety in patients with chronic liver disease .**Methods: This** is an cross-sectional study conducted at aims hospital, Hyderabad, Pakistan After approval from the Institutional Review Board (IRB) dated 20/12/20, IRB No. 0137 with the age group of 18 to 60 years old adults attended gastroenterology clinic from the period of January to june 2021. assessment of mental status of the patients by using Depression Anxiety Stress Scale-21 (DASS-21).this scoring system has 21 questions with each part having further seven questions and on the basis of these question we measures the grading of anxiety and depression .the score is ranges from 0-21 score. Patients with score upto 7 shows normal level of depression ,8-9 mild level of depression ,10-13 moderate level of depression ,14- 15 severe depression and score of 25 shows extreme level of depression .**Results:** 16.5% of them had moderate depression. There are statistically significant differences between gender, patient education, ascites, child pough classification, comorbid diabetes and mean depression, anxiety and stress scores. Comorbid diabetes and decompensated cirrhosis significantly increase risk of depression by 3.84 and 17.7 folds respectively.**conclusion :**pychaitry symptoms are more common in males ,highly educated patients,in diabetes and in advanced liver disease patients

Key factors :depression and anxiety .

Introduction:

Chronic liver disease (CLD) incorporates a different range of problems, including from liver steatosis (alcoholic and non-alcoholic), infection from hepatitis B and C, cirrhosis to other more uncommon conditions.

Because of their higher occurrence and pervasiveness, these afflictions have transformed into a continuously critical general wellbeing matter worldwide. Patients with CLD can present with wide variety of symptoms of anxiety and depression. They can additionally have problems of behavior, personality, sleep and cognitive impairment.

Psychosocial stressors are a contributing issue to such horribleness, and include the antagonistic impact of disease diagnosis, against viral treatment, disgrace, also, worries about infection progression or viral transmission

The confirmation about the presence of these manifestations in CLD patients is significant in light of the fact that they have an antagonistic impact upon the sickness course as increase of actual side effects, practical impedance, decreased treatment consistence, and impeded nature of life.

The aims of this study is to determine the frequency of anxiety and depression in Pakistani patients suffering from chronic liver disease and to assess disease-specific factors, contribution of selected Sociodemographic factors for anxiety and depression .

Methodology:

This is an cross-sectional study conducted at aims hospital, Hyderabad, Pakistan After approval from the Institutional Review Board (IRB) dated 20/12/20, IRB No. 0137 with the age group of 18 to 60 years old adults attended gastroenterology clinic from the period of January to june 2021.patients were excluded those have already history of psychiatry disorders ,acute cause of liver disease or liver transplanted patients .total 248 patients were recruited in this study and patients were selected on systemic random techniques ,every 3rd patient with chronic liver disease included in this current study .3 types of questionere were used in this study .the first questionere includes questions about biodata ,etiology of CLD .patients were stratified on the bassis of severity of liver disease (no cirrhosis/early cirrhosis and patient with those having Child B and C cirrhosis).The confirmation of CLD Is confirmed by presence of sign and symptoms of CLD and by ultrasound examination and their severity is assessed by using Child – Pugh –scoring and their social class was assessed by using El-Gilany et al. questionnaire.3rd part of questionnaire was for the assessment of mental status of the patients by using Depression Anxiety Stress Scale-21 (DASS-21).this scoring system has 21 questions with each part having further seven questions and on the basis of these question we measures the grading of anxiety and depression .the score is ranges from 0-21 score. Patients with score upto 7 shows normal level of depression ,8-9 mild level of depression ,10-13 moderate level of depression ,14- 15 severe depression and score of 25 shows extreme level of depression .

The data was entered and analyzed using IBM-SPSS V-23. The continuous variables were described as Mean ± SD and categorical variables as frequency and percentages. To compare means of two groups, Mann Whitney test (for not normally distributed data) were used. For comparing of more than two groups, Kruskal Wallis test was used for not normally distributed data. To assess the correlation between patients' age and DASS-21 score, Spearman correlation coefficient was used. The level statistical significance was set at 5% (P≤0.05).

Results:

Mean age of the patients in this current study was 43.65 (± 8.01) years ranging from 32 to 60 years and 60.5 are males with majority of them belonging from the rural areas about 65 %.18.1 % of patients are belonging from the highly educated subgroups with 8.9 % are those who are illiterate and 20 % of those who are semi professional in their occupation.

About 39.5, 23.8% of patients had no cirrhosis and thirty seven percent of studied patients (36.7%) had compensated and decompensated cirrhosis respectively with majority of them 70.3% has no comorbid

diseases. About 37.1% had child A cirrhosis ,27 % child B cirrhosis and 35 % had child C cirrhosis .as Hepatitis C is more common in Pakistan ,70 % of patients are suffering from hepatitis C in this current study with 10 % only with Hepatitis B cirrhosis .
About 16% of patients were suffering from mild and extreme form of depression with a significant correlation of DAAS score with the duration of disease. There are statistically significant differences between gender, education and mean depression, anxiety and stress score and also with the severity of CLD child B and C cirrhosis, presence of ascities and history of Diabetes that increased the risk of depression by 3.84 and 17.7 folds respectively.

Discussion:

Neuropsychological shortfalls in those patients typically incorporate mental disability and Depression. These types of diseases occur due to the accumulation of toxins and neurotoxin molecules that are unable to excrete from the damaged liver with same immunological pattern leads to the depression.
Bianchi et al.In their study of 156 patients with cirrhosis utilizing two surveys (the Beck Depression Inventory and the Mental General Well-Being List) revealed that the mental state of those patients is thoroughly compromised. Sign of depression and psychological stress also, melancholy are related with CP classification.
Qureshi et al conducted the study in 206 patients and divided these patients into 3 groups Group-I (chronic hepatitis C, n = 95), group-II (chronic hepatitis B, n = 29) and group-III (healthy subjects, n = 82).In this study age,sex and socioeconomic status of the patients were matched instead if frequency of depression measured by Hospital Anxiety and Depression Scale (HADS),found one fifth of patients with moderate depression .our study results also matched with this same study as the majority of patients are males in this current study .
In patients with CLD, the reported incidence of depression and anxiety is about 20 to 70%. A study conducted by Popovic et al reported that 13.9 % patients had anxiety and 62% had depression in CLD patients .patients diagnosed with Chronic Hepatitis C are had been diagnosed with higher rate of depression .A study conducted by Dwight et al, evaluated 50 patients with chronic hepatitis C there study also concluded that 28% had depression and their disability figure is more related to depression then the liver disease.
There multiple factors that is responsible for in patients with chronic hepatitis C or chronic liver disease that includes alteration in brain metabolism, inconsistency and unpredictability of the course of illness, emotional factors, complexity and ambiguity but in our study there is no correlation is found in relation with disease specific characteristics or demographic factors like age, occupation, marital status or cause of chronic liver disease. Although comorbidity with Diabetes, Male gender, higher education and severity of liver disease with decompensated cirrhosis is associated with higher rate of depression and anxiety. In our study age has no correlation with depression which is also proved by the other study. Male patients had more depression, probably explained by males are financially responsible in their families. On the other hand a study done in china that shows female gender and socioeconomic status are significantly correlated with depression may be due difference in biological and social factors.
Our results also concluded that hepatitis C patients are prone to develop the depression which is also proved with the study conducted by Qureshi et al and also by Carta et al that demonstrate depressive disorders are not statically different in hepatitis B patients, although indicated that if the patients had combined infection with chronic hepatitis b and c then they had higher rate of depression.

To our knowledge it is first study in Pakistan that assess the psychiatry comorbidities in patients with chronic liver disease however this study has few limitation that includes as the depression and anxiety is self report by the patients recall bias could not b excluded, secondly this is an cross-sectional study the causality between psychiatric comorbidities and their correlates could not be identified.

Conclusion:

The largest percentage of patients with CLD reported psychiatric symptoms (42.7%, 72.6%).and 41.5% self-reported symptoms of depression, anxiety and stress respectively). Presence of comorbid diabetes mellitus and decompensated cirrhosis increase risk of depression by 3.84 and 17.7 fold respectively).

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Manuscript Ref. No. 0038 Title of the Manuscript: Anxiety and depression in South east patient

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Study needs to be following improvement
orientation is not clearly defined
in abstract section box
Please checked refrence No 1 and 2
Source of and conflict of funding is not mentioned
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Manuscript Ref. No. 0038 Title of the Manuscript: Anxiety And Depression in South East Patient & Chronic liver Disease

Reviewer's Name: Dr. AMNA MUSTAFA.

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Original Article

ASSOCIATION OF VITAMIN D STATUS WITH GLYCEMIC CONTROL IN TYPE II DIABETIC PATIENTS

Keenjher Rani, Urooj Bhatti,
Sindhu Laghari

ABSTRACT:

Objective: To determine the association of vitamin D levels with glycemic control in type II diabetic patients.

Study setting: Physiology department and diabetic clinic, LUMHS Jamshoro from March 2020 to August 2020

Methods: This study comprised all male and female type II diabetic patients (n=196), of age group ≥18 years. After taking all aseptic measures, 10cc blood taken intravenously in study population. Serum vitamin D3 levels determined by using 3L52 ARCHITECT 25 –OH Vitamin - D Reagent kit. Hemoglobin A1c determined on Cobas e411 Roche. Data entered in predesigned proforma and then to SPSS data sheet and analyzed on IBM, SPSS VERSION 22.0.

Results: Mean±SD of age (in years), vitamin D levels(ng/ml) and hemoglobin a1c in study population (n=196) were43.57±9.59, 24.6±12.7 and 8.27±2.15 respectively. Deficient vitamin D levels found in 47.8 percent type II diabetic group having hemoglobin a1 c >8.0gm%, (P-value<0.01, Pearson chi square value=27.74, df=4). Vitamin D levels were negatively related to glycemic control in diabetic type II patients, r- value=-0.18 and p value <0.01.

Conclusion: Deficient vitamin D levels are related with poor glycemic control in type II diabetes mellitus.

Key words: Vitamin D, Hemoglobin a1c, diabetes type II

How to cite this:
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BACKGROUND

Vitamin D is one of the significantdieteticmaterials and their function is to controllevels of calcium and the phosphorus in human body. They also play their part in immune system and also in the mineralization of bones. At present, vitamin D is the topic of debate that either it should be recommended to get better glycemic control in type II diabetes mellitus patients.[1] Prevalence of pre-diabetes and type II diabetes has been augmented in Pakistan. Comprehensive strategies are needed to incorporate prevention, screening and management of type II diabetes.[2]Diabetes mellitus is described by chronic increased blood glucose levels due to the impaired secretion of insulin, peripheral insulin resistance or both. [3]A few research studies explored that blood sugar levels are connected to vitamin D levels. [4,5]In Pakistan, deficient vitamin D is a big public health concern and its occurrence in various regions of Pakistan varies from 70 percent to 90 percent in healthy individuals, and up to 97 percent in ambulatory patients.[6] It has been reported that in spite of abundant sun light in South Asia, insufficient vitamin D levels are pertinent in this area.[6,7]Vitamin D supplementation might play role in decreasing the incidence of type II diabetics among the non-diabetic people at augmented risk.[8] Presently, vitamin D supplementations are suggested as better option for better glycemic control in type II diabetic patients. So, this study has been designed to determine the association of vitamin D status with glycemic status in type II diabetic patients and to determine the relationship between vitamin D levels and hemoglobin a1c.

METHODOLOGY

Present cross sectional comparative study carried in the Physiology department of LUMHS in collaboration with diabetic clinic, Liaquat university hospital, Jamshoro/Hyderabad, from march 2020 to august 2020. The sampling technique was non probability purposive sampling. This study comprised all male and female type II diabetic patients of age group ≥18 years who signed informed consent form. The patients who were non-diabetics, type I diabetics, migraneur, hypertensive, obese, taking vitamin D supplements, chronic kidney disease, liver dysfunction and pregnant women were excluded from this study. After taking all aseptic measures, 10 cc blood taken intravenously in study population and vitamin D levels, hemoglobin a 1c and fasting blood sugar determined. Serum vitamin D3 levels determined by using 3L52 ARCHITECT 25 –OH Vitamin - D Reagent kit. Vitamin D levels, 30-40 ng/ml were considered normal. The value <20 ng/ml was definite as deficient while insufficient was in range of 20.1 to 29.9ng/ml. [9]Hemoglobin a1c is well thought-out as the gold standard measure of glycemic control in diabetic patients. [10]

The data entered in predesigned proforma and analyzed on SPSS 22.0. Quantitative data is expressed as mean ±SD and qualitative data as frequency (%). Categorical data compared by applying chi square test. P value < 0.05 was taken statistically significant.

RESULTS

General characteristics of study population (n=196) are shown **in table No.1**

Vitamin D status compared in three groups of type II diabetic (Hba1c<7.0%, =7.0-8.0% and >8.0 %)(P-value<0.01, Pearson chi square value=27.74, df=4)**Table No. 2**

Vitamin D levels are negatively related to glycemic control in diabetic type II patients, r- value=-0.18 and p value <0.01 as revealed in **table No. 3**

TABLE NO.1: GENERAL CHARACTERISTICS OF STUDY POPULATION(N=196)

	Mean	Frequency(%)
Age(in Years)	43.57±9.59	--
Fasting blood sugar	147.40±27.0	--
Hemoglobin A1c	8.27±2.15	--
Glycemic status(Hba1c)		
<7.0%	--	46(23.5%)
=7.0-8.0%	--	38(19.4%)
>8.0%	--	112(57.1%)
Fasting blood sugar (mg/dl)	147.4±27.0	--
Vitamin D levels	24.6±12.7	--
Normal vitamin D levels 30-40ng/ml	--	61(31.1%)
insufficient(20.1-29.9 ng/ml)	--	68(34.7%)
deficient(<20ng/ml)	--	67(34.2%)

TABLE NO.2: VITAMIN D LEVELS ANDGLYCEMICCONTROL IN TYPE II DM PATIENTS(N=196)

				Glycemic status			Total
				Hba1c<7.0 %	Hba1c =7.0-8.0%	Hbba1 c>8.0 %	
vitamin D levels	Normal vitamin D levels 30-40ng/ml	Count	24	10	27		61
		% within Glycemic status	52.2 %	26.3%	24.1%		31.1 %
	insufficient(20.1-29.9 ng/ml)	Count	19	17	32		68
		% within Glycemic status	41.3 %	44.7%	28.6%		34.7 %
	deficient(<20ng/ml)	Count	3	11	53		67
		% within Glycemic status	6.5 %	28.9%	47.3%		34.2 %
Total		Count	46	38	112		196
		% within Glycemic status	100. 0%	100.0%	100.0%		100.0 %

TABLE NO.3: CORREALTION OF VITAMIN D LEVELS WITH AGE AND HEMOGLOBIN A1C (N=196)

Variable	r- value	p-value
Age	0.08	0.2
Hemoglobin a1c	-0.18	0.008

DISCUSSION

Diabetes mellitus is a big public health issue globally that inflict to note worthy comorbidities and mortalities attributed to micro vascular and also macrovascular complications. The deprived condition of vitamin D might participate a significant role in developing type II diabetes mellitus.[11]In present study, there was negative relationship (r= -0.18) between vitamin D and hemoglobin a1c in type II diabetic patients. Saif-

Elnasr M. et al.[12] revealed significantly declined levels of vitamin D in type II diabetic individuals when compared to controls, p-value=0.01. Similar

to this study, Buhary M et al. [13] found inverse correlation between serum 25(OH) vitamin D and HbA1c (r (relationship coefficient) = -0.14, P < 0.01) before supplementation with vitamin D. Furthermore, Mirhosseini N, et al.[14] concluded in their research that adding vitamin D supplements might help in declining the fasting blood sugar levels and hemoglobin a1c in diabetics and this also increases insulin sensitivity in type II diabetic individuals. High levels of blood glucose represent abnormality in glucose metabolism and increased hemoglobin a1c reflect poor glycemic control. Vitamin D act as modulator in homeostasis of glucose and its deficiency or insufficiency might play role in poor glycemic control in type II diabetics.[15] Khan TU et al. [16] also revelaed that hypovitaminosis D is linked with reduced glycemic control in type II diabetes as well as adding vitamin D, could probably play the part in improving glycemic control in patients with uncontrolled diabetes. It is suggested thereby that vitamin D levels are inversely related to Hba1c levels and glycemic control.

CONCLUSION

Deficient vitamin D levels are related with poor glycemic control in type II diabetes mellitus.

Conflict Of Interest: *None*
Funding Source: *None*

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Keenjhari Rani	Conception of study design, acquisition, analysis, and interpretation of data.
Urooj Bhatti	Drafting and methodology, data interpretation
Sindhu Laghari	Analysis and interpretation of data for work

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vit d and dm

by Me 2

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ABSTRACT:

Objective: **To determine the association of vitamin D levels with glycemic control in type II diabetic patients.** Study setting**: Physiology department and diabetic clinic, LUMHS Jamshoro from March 2019 to August 2019.** Methods: **This study comprised all male and female type II diabetic patients (n=196), of age group ≥18 years. After taking all aseptic measures, 10cc blood taken intravenously in study population. Serum vitamin D3 levels determined by using 3L52 ARCHITECT 25 –OH Vitamin - D Reagent kit. Hemoglobin A1c determined on Cobas e411 Roche. Data entered in predesigned proforma and then to SPSS data sheet and analyzed on IBM, SPSS VERSION 22.0.** Results: **Mean±SD of age (in years), vitamin D levels (ng/ml) and hemoglobin a1c in study population (n=196) were 43.57±9.59, 24.6±12.7 and 8.27±2.15 respectively. Deficient vitamin D levels found in 47.8 percent type II diabetic group having hemoglobin a1 c >8.0gm %, (P-value<0.01, Pearson chi square value=27.74, df=4). Vitamin D levels were negatively related to glycemic control in diabetic type II patients, r- value= -0.18 and p value <0.01.** Conclusion: **Deficient vitamin D levels are related with poor glycemic control in type II diabetes mellitus.**

Key words: **Vitamin D, Hemoglobin a1c, diabetes type II**

BACKGROUND:

Vitamin D is one of the significant dietetic materials and their function is to control levels of calcium and the phosphorus in human body. They also play their part in immune system and also in the mineralization of bones. At present, vitamin D is the topic of debate that either it should be recommended to get better glycemic control in type II diabetes mellitus patients.[1] Prevalence of pre-diabetes and type II diabetes has been augmented in Pakistan. Comprehensive strategies are needed to incorporate prevention, screening and

management of type II diabetes.[2] Diabetes mellitus is described by chronic increased blood glucose levels due to the impaired secretion of insulin, peripheral insulin resistance or both. [3] A few research studies explored that blood sugar levels are connected to vitamin D levels. [4,5] In Pakistan, deficient vitamin D is a big public health concern and its occurrence in various regions of Pakistan varies from 70 percent to 90 percent in healthy individuals, and up to 97 percent in ambulatory patients.[6] It has been reported that in spite of abundant sun light in South Asia, insufficient vitamin D levels are pertinent in this area.[6,7] Vitamin D supplementation might play role in decreasing the incidence of type II diabetics among the non-diabetic people at augmented risk.[8] Presently, vitamin D supplementations are suggested as better option for better glycemic control in type II diabetic patients. So, this study has been designed to determine the association of vitamin D status with glycemic status in type II diabetic patients and to determine the relationship between vitamin D levels and hemoglobin a1c.

METHODOLOGY:

Present cross sectional comparative study carried in the Physiology department of LUMHS in collaboration with diabetic clinic, Liaquat university hospital, Jamshoro/Hyderabad, from march 2019 to august 2019. The sampling technique was non probability purposive sampling. This study comprised all male and female type II diabetic patients of age group ≥18 years who signed informed consent form. The patients who were non-diabetics, type I diabetics, migraneur, hypertensive, obese, taking vitamin D supplements, chronic kidney disease, liver dysfunction and pregnant women were excluded from this study. After taking all aseptic measures, 10 cc blood taken intravenously in study population and vitamin D

levels, hemoglobin a 1c and fasting blood sugar determined. Serum vitamin D3 levels determined by using 3L52 ARCHITECT 25 –OH Vitamin - D Reagent kit.

Vitamin D levels, 30-40 ng/ml were considered normal. The value <20 ng/ml was definite as deficient while insufficient was in range of 20.1 to 29.9ng/ml. [9] Hemoglobin a1c is well thought-out as the gold standard measure of glycemic control in diabetic patients. [10]

The data entered in predesigned proforma and analyzed on SPSS 22.0. Quantitative data is expressed as mean ±SD and qualitative data as frequency (%). Categorical data compared by applying chi square test. P value < 0.05 was taken statistically significant.

RESULTS:

General characteristics of study population (n=196) are shown in table No.1

Vitamin D status compared in three groups of type II diabetic (Hba1c<7.0%, =7.0-8.0% and >8.0 %) (P-value<0.01, Pearson chi square value=27.74, df=4) Table No. 2

Vitamin D levels are negatively related to glycemic control in diabetic type II patients, r-value=-0.18 and p value <0.01 as revealed in table No. 3

TABLE NO.1: GENERAL CHARACTERISTICS OF STUDY POPULATION (N=196)

	Mean	Frequency (%)
Age(in Years)	43.57±9.59	–
Fasting blood sugar	147.40±27.0	–
Hemoglobin A1c	8.27±2.15	–
Glycemic status(Hba1c)		
<7.0%	–	46(23.5%)
=7.0-8.0%	–	38(19.4%)
>8.0%	–	112(57.1%)
Fasting blood sugar (mg/dl)	147.4±27.0	–
Vitamin D levels	24.6±12.7	–
Normal vitamin D levels 30-40ng/ml	–	61(31.1%)

insufficient(20.1-29.9 ng/ml)	–	68(34.7%)
deficient(<20ng/ml)	–	67(34.2%)

TABLE NO.2: VITAMIN D LEVELS AND GLYCEMIC CONTROL IN TYPE II DM PATIENTS (N=196)

			Glycemic status			Total
			Hba1c<7.0 %	Hba1c =7.0-8.0%	Hbba1c>8.0%	
vitamin D levels	Normal vitamin D levels 30-40ng/ml	Count	24	10	27	61
		% within Glycemic status	52.2%	26.3%	24.1%	31.1%
	insufficient(20.1-29.9 ng/ml)	Count	19	17	32	68
		% within Glycemic status	41.3%	44.7%	28.6%	34.7%
	deficient(<20ng/ml)	Count	3	11	53	67
		% within Glycemic status	6.5%	28.9%	47.3%	34.2%
Total		Count	46	38	112	196
		% within Glycemic status	100.0%	100.0%	100.0%	100.0%

TABLE NO.3: CORREALTION OF VITAMIN D LEVELS WITH AGE AND HEMOGLOBIN A1C (N=196)

Variable	r- value	p-value
Age	**0.08**	**0.2**
Hemoglobin a1c	**-0.18**	**0.008**

DISCUSSION:

Diabetes mellitus is a big public health issue globally that inflict to noteworthy comorbidities and mortalities attributed to microvascular and also macrovascular complications. The deprived condition of vitamin D might participate a significant role in developing type II diabetes mellitus.[11] In present study, there was negative relationship (r= -0.18) between vitamin D and hemoglobin a1c in type II diabetic patients. Saif-Elnasr M. et al.[12] revealed significantly declined levels of vitamin D in type II diabetic individuals when compared to controls, p-value=0.01. Similar to this study, Buhary M et al. [13] found inverse correlation between serum 25(OH) vitamin D and HbA1c (r (relationship coefficient) = -0.14, P < 0.01) before supplementation with vitamin D. Furthermore, Mirhosseini N, et al.[14] concluded in their research that adding vitamin D supplements might help in declining the fasting blood sugar levels and hemoglobin a1c in diabetics and this also increases insulin sensitivity in type II diabetic individuals.

High levels of blood glucose represent abnormality in glucose metabolism and increased hemoglobin a1c reflect poor glycemic control. Vitamin D act as modulator in homeostasis

of glucose and its deficiency or insufficiency might play role in poor glycemic control in type II diabetics.[15] Khan TU et al. [16] also revelaed that hypovitaminosis D is linked with reduced glycemic control in type II diabetes as well as adding vitamin D, could probably play the part in improving glycemic control in patients with uncontrolled diabetes. It is suggested thereby that vitamin D levels are inversely related to Hba1c levels and glycemic control.

CONCLUSION:

Deficient vitamin D levels are related with poor glycemic control in type II diabetes mellitus

vit d and dm

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Manuscript Ref. No. 0039 Title of the Manuscript: Association of vitamin D-status with Glycemic Control in type II diabetic Patient.

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Manuscript Ref. No. 0039 Title of the Manuscript: Association of vitamin-D Status with Glycemic control in Type 2 diabetic Patient

Reviewer's Name Dr. Muzafar Ali Surhio

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09. Are the aims and objectives clearly specified	~~Yes~~	No
10. Is the sample (if applicable) adequately described? and Methods clarified?	~~Yes~~	No
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12. Is the research design (if applicable) adequate to achieve the objective of the study?	~~Yes~~	No
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Original Article

SOCIAL AND DEMOGRAPHIC CHARACTERISTICS OF ACUTE DIARRHEA IN CHILDREN AGED 2-6 YEARS

Arshad Ali Lakho, Ashraf Ali

ABSTRACT

Object: The goal of this study was to see association between socio-demographic characteristics and acute diarrhea in children treated in the outpatient department.

Methodology: This was a case control study, conducted at Outpatient department of Pakistan Institute of Medical Sciences, Islamabad from July 2020 to July 2021. A total of 270 patients were selected for the study, having age between 2-6 years. Among them, 107 were the cases of acute diarrhea while 163 were selected as normal control. A structured questionnaire was prepared for analysis of the data.

Results: Regarding the child's age, mother's employment position, and kacha type of housing, there was a statistically significant correlation between cases (with diarrhea) and controls (without diarrhea) ($p<0.001$). There was also a statistically significant link between rural living and the absence of diarrhea ($p<0.001$).

Conclusion: Childhood diarrhea risk factors vary by population, with certain factors being more relevant than others in specific circumstances. Children aged 2-3 years had a higher risk of diarrhea than children aged 4-6 years. Similarly, cases of acute diarrhea in infants have been linked to mothers' employment status and living in a city.

Keywords: Children, acute diarrhea, socio-demographic factors.

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INTRODUCTION

In underdeveloped nations such as Pakistan, diarrhea is a leading cause of child mortality and morbidity.[1]Only five nations account for more than half of these deaths including Pakistan, India, Afghanistan, Ethiopia, and Nigeria.[2]In order to effectively eradicate and prevent child mortality, we must first identify the root cause of illness.

Predisposing factors for childhood diarrhea in Pakistan include poor socioeconomic and sanitary circumstances, contaminated water supplies, a lack of public awareness, and poverty.[3]According to statistics, Pakistani children under the age of five experience roughly 120 million episodes per year on average.[4]It is critical that the most relevant risk factors for diarrhea be identified in communities first through study. The frequently known relationships have been investigated in developed countries, although these associations may differ in other geographical situations.[5]Pakistan has long had a nationwide program of primary health care delivered by Lady Health Workers (LHWs), who deliver basic health services to people's homes. Despite improvements in child health services such as hygiene awareness and immunization schedules, the message has not been properly translated, as evidenced by low recognition.[6]Certain family-Related demographic characteristics, such as early marriages, uneducated moms, and maternal work, were found to be substantially correlated with diarrhea morbidity. Acute diarrhea is most common in children under the age of six, and especially in babies.[7]In most of the research, boys have a higher rate of diarrhea than girls.[4]It is possible that the gender disparity noticed is due to societal pressures that favor males over females. Mothers are the major caregivers for infants under the age of six, and most studies have found a link between educated mothers and the lack of diarrhea.[8]Policies aimed at reducing diarrhea in children should focus on children whose moms are illiterate or undereducated.[8]Education, on the other hand, does not work in isolation; it interacts with other essential factors and may or may not yield societal advantages, depending on the circumstances.

In most studies, younger mothers complained of diarrhea more frequently than older mothers, which could be explained in part by their experience in childcare. Another reason could be that older mothers tend to have more children and so have greater experience managing diarrhea.[9]Diarrhea in children has also been linked to a low socioeconomic position. Increased household income may aid in the reduction of diarrhea morbidity in toddlers by addressing their dietary needs and providing improved sanitary conditions. In 2016, research conducted in three Peshawar teaching hospitals found that 86.4 percent of households had an income of less than 5000 to 20000 per month, and that their children's nutritional needs were not addressed because of their poor income level. As a result, their immune systems were compromised,

and they were more susceptible to infections, such as diarrhea.[10] The current study was carried out to investigate the socio-demographic characteristics associated with acute diarrhea in children 2-5 years of age in Pakistan, because Pakistan has a high burden of diarrheal illness. Identifying the causes of diarrhea is critical for successful prioritization of child health-promoting programs and policy formulation, as well as resource needs in each location. As a result, the purpose of this study was to determine the socioeconomic risk factors for the occurrence of childhood diarrhea in children aged 2–6 years.

METHODOLOGY

This was a case control study, conducted at Outpatient Department of Pakistan Institute of Medical Sciences, Islamabad. The study was carried out for the period of 6 months (July 2020-July 2021). Children aged 2 to 6 years old were chosen from the Family Outpatient Department who had been proven to have acute diarrhea based on history taking. The study excluded children with chronic diarrhea, any other ailment, or who were very malnourished. Controls were children aged 2 to 6 years old who were found to be healthy and not suffering from acute diarrhea based on their history and signs/ symptoms. They were chosen from the vaccination center. There was also a check to see if the infant had any additional medical or surgical issues. The minimum required sample size (n) 100 for each group was obtained using the WHO sample size calculator, with a 95% confidence level and a 5% margin of error. The test's power was set at 80%, and the odds ratio test value was set at 1. The likelihood of being exposed to a disease is expected to be 0.2754. Data was collected via non-probability sequential sampling. As a result, 270 children were enrolled in the trial, 107 of whom experienced diarrhea and 163 of whom did not, resulting in a 2:1 ratio of diarrheal to non-diarrheal children. Data was gathered from mothers using a standardized questionnaire with semi-closed questions. The questionnaire was divided into two parts: the first dealt with demographic and socioeconomic characteristics, while the second dealt with questions about sanitary practices. In this study, only the first section of the questionnaire was used. The data collection process was taught to two study assistants. The study included two sorts of variables: dependent variables and independent variables. Only acute diarrhea was a dependent variable, but demographic and socioeconomic factors were independent variables in this study. After describing the study's objective and benefits to the participants, their permission was obtained, and participation in the study was completely voluntary. For data entry and analysis, SPSS version 24 was utilized. Continuous data were given descriptive statistics such as means, modes, and standard deviation, whereas categorical data were given frequencies and percentages. The chi-square test was performed to compare attributes between different groups, with a p-value of 0.05 considered significant.

RESULTS

There were 270 children in total, 158 (58.51%) of whom were males and 112 (41.48%) of them were females. The average age of the 270 children in the study was 4.27±1.22 years, whereas the average age of the mothers was 27.45±6.48 years.

Socio demographic parameters of children and mother including age, gender, area of living, education status of mother and living style are summarized in Table 1.

Various risk factors were examined between cases and controls, and the statistical and epidemiological significance of differences was established using the chi square test and odds ratios (Table 2) There was a statistically significant link between acute diarrhea and age in children aged 2-3 years, and the risk of acute diarrhea decreased with age. A youngster aged 2-3 years had 15 times the chance of suffering acute diarrhea than a child aged 4-6 years. Working mothers, living in a city, and having a kacha kind of dwelling all had a high significant relationship ($p<0.01$).There was no link between acute diarrhea and the mother's educational status ($p=0.88$) or the father's monthly income ($p=0.51$) (Table 2).

Table 1: Socio-demographic parameters of participants (n=270)

Parameter	Frequency (number)	Percentage (%)
Age		
2-3 years	145	53.70
4-6 years	125	46.29
Gender		
Male	158	58.51
Female	112	41.48
Age of Mothers		
≤30 years	177	65.55
>30 years	93	34.44
Area of Living		
Rural	166	61.27
Urban	104	38.51
Education of Mother		
Formal	205	75.92
Not formal	65	24.07
Working Status of Mothers		
Housewife	211	78.14
Working	59	21.85
Monthly Income		
<Rs. 10k	32	11.85
Rs. 10k – 30k	202	74.81
>Rs. 30k	36	13.33
Type of House		
Pakka	191	70.74
Kacha	79	29.25

Table 2: Risk Factors and their Comparison in Acute Diarrhea (n=270)

Parameter	Diarrhea		p-value	Odds Ratio	95% CI
	Case (n/%)	Control (n/%)			
Age of Child					
2-3 years	95 (65.51%)	50 (34.48%)	<0.001	20.98	11.12 – 43.91
4-6 years	12 (9.6%)	113 (90.4%)			
Gender					
Male	67 (42.40%)	91 (57.59%)	0.15	1.41	0.91 – 2.05
Female	44 (39.28%)	68 (60.71%)			
Education of Mother					
Formal	13 (25%)	39 (75%)	0.62	0.88	0.49-1.59
Not formal	93 (42.66%)	125 (57.33%)			
Working Status of Mother					
Housewife	113 (53.55%)	98 (46.44%)	<0.001	3.11	1.77-5.41
Working	27 (45.76%)	32 (53.23%)			
Monthly Income					
≤30k	105 (44.87%)	129 (55.12%)	0.51	1.09	0.82-1.79
>30k	11 (30.55%)	25 (69.44%)			
Type of Living					
Pakka	78 (40.83%)	113 (59.16%)	<0.001	1.59	1.19-3.12
Kacha	32 (40.50%)	47 (59.49%)			
Setting of Living					
Urban	41 (39.42%)	63 (60.57%)	<0.001	1.78	1.12-2.59
Rural	52 (31.32%)	114 (68.67%)			

DISCUSSION

In present study, risk of diarrhea was higher in children aged 2–3 years compared to children aged 4-6 years, which is confirmed by a study conducted in Tanzania by Mashoto, who found that diarrhea prevalence reduced gradually after the second birthday in children under the age of five. [11]These findings support prior research that indicated that as a child grows older, the risks of being a victim of diarrhea diminish.

The gender of the child was not a statistically significant predictor of childhood diarrhea in our study, which was like the findings of Kijakazi et al.[12]However, some studies have found a link between childhood diarrhea and boys, such as Anteneh et al's study[13], which found that boys were more impacted than their female counterparts. This could be because males who were playing outside were more likely to take up dirt from the ground.

There was no significant link between maternal education and lower diarrhea incidence when it came to mothers' educational status. It is worth mentioning that, in comparison to prior research of similar type, this conclusion was somewhat surprising. 348,706 children from 40 developing countries were included in a multilevel analysis of data from the Demographic and Health Surveys and the World Bank. Lack of maternal education was linked to diarrhea (OR=1.416; 95 percent CI 1.283-1.564), along with other variables.[7] Ghasemi et al. conducted a cross-sectional study in Kashan, Iran, to assess mothers with children under the age of five years' awareness of diarrhea, its prompt care, and the relationship between this knowledge and specific demographic variables. The mothers' knowledge had no statistically significant relationship with their schooling (p-value 0.096).[14]These findings demonstrated that, in terms of projected positive benefits on child health, we cannot rely solely on mother education. Higher levels of maternal education may be required as a precondition for improved child health, and super additive actions may be required.

When parental occupation was compared to childhood diarrhea, a substantial link was seen. Children with working moms had a higher risk of diarrhea than children whose mothers were housewives, according to our research. Children of mothers who were engaged in any outdoor job were almost two times more likely to develop diarrhea than children of mothers who were not working, according to a study collected from the National DHS data utilizing data extraction techniques in Northwest Ethiopia.[15]Working mothers' children were 14 percent more likely than non-working mothers' children to suffer from diarrhea. This research backs up those who argue that a mother's job is harmful to her child's health. Absence of mothers from the home not only disrupts the home's internal system, but it also has negative impacts on children's health when coupled with insufficient socioeconomic support.[16] The current study found a statistically significant relationship between diarrhea and the kind of housing (Kacha or Pakka). Oluranti Epko's study in Nigeria, like ours, found a link between Kacha home and diarrhea in young children (OR = 0.73, 95 percent CI = 0.40-1.19).[17] When comparing dwellings, it was discovered that children in urban areas are more likely to get diarrhea than children in rural areas. Because our water lines are clogged with filth, most Pakistani homes consume bacterially polluted water. Another study was carried out at Mbour over a four-year period. The 24 health facilities accounted for a total of 111,302 child visits. It was discovered that the incidence of diarrheal cases was higher in urban regions than in rural areas (24.4 percent vs. 19.9 percent). [17]Another study conducted in Kenya found that children living in rural regions were less likely than children living in urban areas to have suffered diarrhea.[18] When asked about their monthly income, the majority said they earned between Rs 10,000 and Rs 30,000, and interestingly, no link was found between diarrhea and monthly income of

less than Rs 30,000/- or more. In a study conducted by Kalakheti, diarrhea was found to be less common when the father had a regular or stable work, regardless of whether it paid more or less than Rs.30, 000. [19]

CONCLUSION

Although diarrhea morbidity varies by geographical zone, we were able to emphasize the importance of a few parameters that may be useful in the development of disease control programmed in children.

The age of the child exhibited a substantial relationship with acute diarrhea. Children aged 2-3 years old had a higher risk of getting diarrhea, which decreased as they grew older. Working status of the mother and living in an urban area were also found to be strongly linked with cases when compared to controls. The child's gender and monthly income were the only independent variables that did not have a significant relationship between cases and controls. Surprisingly, maternal education had no significant relationship in our research. These aspects need to be investigated further to eliminate the main cause of diarrhea.

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Ashraf Ali	Conception of study design, acquisition, analysis, and interpretation of data.

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SOCIAL AND DEMOGRAPHIC CHARACTERISTICS OF ACUTE DIARRHEA IN CHILDREN AGED 2-6 YEARS

ABSTRACT

Object: The goal of this study was to see association between socio-demographic characteristics and acute diarrhea in children treated in the outpatient department.

Methodology: This was a case control study, conducted at Outpatient department of Pakistan Institute of Medical Sciences, Islamabad from July 2020 to July 2021. A total of 270 patients were selected for the study, having age between 2-6 years. Among them, 107 were the cases of acute diarrhea while 163 were selected as normal control. A structured questionnaire was prepared for analysis of the data.

Results: Regarding the child's age, mother's employment position, and kacha type of housing, there was a statistically significant correlation between cases (with diarrhea) and controls (without diarrhea) ($p<0.001$). There was also a statistically significant link between rural living and the absence of diarrhea ($p<0.001$).

Conclusion: Childhood diarrhea risk factors vary by population, with certain factors being more relevant than others in specific circumstances. Children aged 2-3 years had a higher risk of diarrhea than children aged 4-6 years. Similarly, cases of acute diarrhea in infants have been linked to mothers' employment status and living in a city.

Keywords: Children, acute diarrhea, socio-demographic factors.

INTRODUCTION

In underdeveloped nations such as Pakistan, diarrhea is a leading cause of child mortality and morbidity.[1]Only five nations account for more than half of these deaths including Pakistan, India, Afghanistan, Ethiopia, and Nigeria.[2]In order to effectively eradicate and prevent child mortality, we must first identify the root cause of illness.

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Related demographic characteristics, such as early marriages, uneducated moms, and maternal work, were found to be substantially correlated with diarrhea morbidity. Acute diarrhea is most common in children under the age of six, and especially in babies.(7)In most of the research, boys have a higher rate of diarrhea than girls.(4)It is possible that the gender disparity noticed is due to societal pressures that favor males over females. Mothers are the major caregivers for infants under the age of six, and most studies have found a link between educated mothers and the lack of diarrhea.(8)Policies aimed at reducing diarrhea in children should focus on children whose moms are illiterate or undereducated.(8)Education, on the other hand, does not work in isolation; it interacts with other essential factors and may or may not yield societal advantages, depending on the circumstances.

In most studies, younger mothers complained of diarrhea more frequently than older mothers, which could be explained in part by their experience in childcare. Another reason could be that older mothers tend to have more children and so have greater experience managing diarrhea.(9)Diarrhea in children has also been linked to a low socioeconomic position. Increased household income may aid in the reduction of diarrhea morbidity in toddlers by addressing their dietary needs and providing improved sanitary conditions. In 2016, research conducted in three Peshawar teaching hospitals found that 86.4 percent of households had an income of less than 5000 to 20000 per month, and that their children's nutritional needs were not addressed because of their poor income level. As a result, their immune systems were compromised, and they were more susceptible to infections, such as diarrhea.(10) The current study was carried out to investigate the socio-demographic characteristics associated with acute diarrhea in children 2-5 years of age in Pakistan, because Pakistan has a high burden of diarrheal illness. Identifying the causes of diarrhea is critical for successful prioritization of child health-promoting programs and policy formulation, as

well as resource needs in each location. As a result, the purpose of this study was to determine the socioeconomic risk factors for the occurrence of childhood diarrhea in children aged 2–6 years.

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Data was gathered from mothers using a standardized questionnaire with semi-closed questions. The questionnaire was divided into two parts: the first dealt with demographic and socioeconomic characteristics, while the second dealt with questions about sanitary practices. In this study, only the first section of the questionnaire was used. The data collection process was taught to two study assistants. The study included two sorts of variables: dependent variables and independent variables. Only acute diarrhea was a dependent variable, but demographic and socioeconomic factors were independent variables in this study. After describing the study's objective and benefits to the participants, their permission was obtained, and participation in the study was completely voluntary. For data entry and analysis, SPSS version 24 was utilized. Continuous data were given descriptive statistics such as means, modes, and standard deviation, whereas categorical data were given frequencies and percentages. The chi-square test was performed to compare attributes between different groups, with a p-value of 0.05 considered significant.

RESULTS

There were 270 children in total, 158 (58.51%) of whom were males and 112 (41.48%) of them were females. The average age of the 270 children in the study was 4.27±1.22 years, whereas the average age of the mothers was 27.45±6.48 years.

Socio demographic parameters of children and mother including age, gender, area of living, education status of mother and living style are summarized in Table 1.

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Table 1: Socio-demographic parameters of participants (n=270)

Parameter	*Frequency (number)*	*Percentage (%)*
Age		
2-3 years	*145*	*53.70*
4-6 years	*125*	*46.29*
Gender		
Male	*158*	*58.51*
Female	*112*	*41.48*
Age of Mothers		
≤30 years	*177*	*65.55*
>30 years	*93*	*34.44*
Area of Living		
Rural	*166*	*61.27*
Urban	*104*	*38.51*
Education of Mother		
Formal	*205*	*75.92*
Not formal	*65*	*24.07*

Working Status of Mothers		
Housewife	*211*	*78.14*
Working	*59*	*21.85*
Monthly Income		
<Rs. 10k	*32*	*11.85*
Rs. 10k – 30k	*202*	*74.81*
>Rs. 30k	*36*	*13.33*
Type of House		
Pakka	*191*	*70.74*
Kacha	*79*	*29.25*

SOCIAL AND DEMOGRAPHIC CHARACTERISTICS OF ACUTE DIARRHEA IN CHILDREN AGED 2-6 YEARS

Table 2: Risk Factors and their Comparison in Acute Diarrhea (n=270)					
Parameter	***Diarrhea***		***p-value***	***Odds Ratio***	***95% CI***
	Case (n%)	***Control (n%)***			
Age of Child					
2-3 years	*95 (65.51%)*	*50 (34.48%)*	*<0.001*	*20.98*	*11.12 – 43.91*
4-6 years	*12 (9.0%)*	*113 (90.4%)*			
Gender					
Male	*67 (42.49%)*	*91 (57.59%)*	*0.15*	*1.41*	*0.91 – 2.05*
Female	*44 (39.28%)*	*68 (60.71%)*			
Education of Mother					
Formal	*13 (25%)*	*39 (75%)*	*0.62*	*0.88*	*0.49-1.59*
Not formal	*93 (42.66%)*	*125 (57.33%)*			
Working Status of Mother					
Housewife	*115 (53.55%)*	*98 (46.44%)*	*<0.001*	*3.11*	*1.77-5.43*
Working	*27 (45.76%)*	*32 (53.23%)*			
Monthly Income					
<30k	*105 (44.87%)*	*129 (55.12%)*	*0.54*	*1.09*	*0.82-1.79*
>30k	*11 (30.55%)*	*25 (69.44%)*			
Type of Living					
Pakka	*78 (40.83%)*	*112 (59.16%)*	*<0.001*	*1.59*	*1.19-3.12*
Kacha	*32 (40.50%)*	*47 (59.49%)*			
Setting of Living					
Urban	*41*	*63*	*<0.001*	*2.76*	*1.12-*

	(39.42 %)	(60.57%)	1		2.59
Rural	52 (31.32 %)	114 (68.67%)			

DISCUSSION

In present study, risk of diarrhea was higher in children aged 2–3 years compared to children aged 4-6 years, which is confirmed by a study conducted in Tanzania by Mashoto, who found that diarrhea prevalence reduced gradually after the second birthday in children under the age of five.[11]These findings support prior research that indicated that as a child grows older, the risks of being a victim of diarrhea diminish.

The gender of the child was not a statistically significant predictor of childhood diarrhea in our study, which was like the findings of Kijakazi et al.[12]However, some studies have found a link between childhood diarrhea and boys, such as Antench et al's study[13], which found that boys were more impacted than their female counterparts. This could be because males who were playing outside were more likely to take up dirt from the ground.

There was no significant link between maternal education and lower diarrhea incidence when it came to mothers' educational status. It is worth mentioning that, in comparison to prior research of similar type, this conclusion was somewhat surprising. 348,706 children from 40 developing countries were included in a multilevel analysis of data from the Demographic and Health Surveys and the World Bank. Lack of maternal education was linked to diarrhea (OR=1.416; 95 percent CI 1.283-1.564), along with other variables.[7]Ghaseni et al. conducted a cross-sectional study in Kashan, Iran, to assess mothers with children under the age of five years' awareness of diarrhea, its prompt care, and the relationship between this knowledge and specific demographic variables. The mothers' knowledge had no statistically significant relationship with their schooling (p-value 0.096).[14]These findings demonstrated that, in terms of projected positive benefits on child health, we cannot rely solely on mother education. Higher levels of maternal education may be required as a precondition for improved child health, and super additive actions may be required.

When parental occupation was compared to childhood diarrhea, a substantial link was seen. Children with working moms had a higher risk of diarrhea than children whose mothers were housewives, according to our research. Children of mothers who were engaged in any outdoor job were almost two times more likely to develop diarrhea than children of mothers who were not working, according to a study collected from the National DHS data utilizing data extraction techniques in Northwest Ethiopia.[15]Working mothers' children were 14 percent more likely than non-working mothers' children to suffer from diarrhea. This research backs up those who argue that a mother's job is harmful to her child's health. Absence of mothers from the home not only disrupts the home's internal system, but it also has negative impacts on children's health when coupled with insufficient socioeconomic support.[16] The current study found a statistically significant relationship between diarrhea and the kind of housing (Kacha & Pakka). Oluranti Epko's study in Nigeria, like ours, found a link between Kacha home and diarrhea in young children (OR = 0.73, 95 percent CI = 0.40-1.19).[17] When comparing dwellings, it was discovered that children in urban areas are more likely to get diarrhea than children in rural areas. Because our water lines are clogged with filth, most Pakistani homes consume bacterially polluted water. Another study was carried out at Mbour over a four-year period. The 24 health facilities accounted for a total of 121,302 child visits. It was discovered that the incidence of diarrheal cases was higher in urban regions than in rural areas (24.4 percent vs. 19.9 percent). [17]Another study conducted in Kenya found that children living in rural regions were less likely than children living in urban areas to have suffered diarrhea.[18] When asked about their monthly income, the majority said they earned between Rs 10,000 and Rs 30,000, and interestingly, no link was found between diarrhea and monthly income of less than Rs 30,000/- or more. In a study conducted by Kulakheli, diarrhea was found to be less common when the father had a regular or stable work, regardless of whether it paid more or less than Rs.30, 000. [19]

CONCLUSION

Although diarrhea morbidity varies by geographical zone, we were able to emphasize the importance of a few parameters that may be useful in the development of disease control programmed in children.

The age of the child exhibited a substantial relationship with acute diarrhea. Children aged 2-3 years old had a higher risk of getting diarrhea, which decreased as they grew older. Working status of the mother and living in an urban area were also found to be strongly linked with cases when compared to controls. The child's gender and monthly income were the only independent variables that did not have a significant relationship between cases and controls. Surprisingly, maternal education had no significant relationship in our research. These aspects need to be investigated further to eliminate the main cause of diarrhea.

Diarhea

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Case-Series

Outcome of Covid -19 in twenty pregnant women- A case Series Studies

Nida Zaki , Uzma Parween , Amna

Abstract

Objective: to quantify the maternal and fetal outcomes and to assess vertical transmission of COVID-19 in pregnant women.

Study Design: A case series.

Place and Duration of Study: Isra University Hospital, Hyderabad, from Dec 2020 to May 2021. Methodology: In this case series clinical record of 20 consecutive pregnant women was reviewed who presented with COVID-19 in the Gynae & Obstetrics department of Isra University Hospital, Hyderabad ,Pakistan. The demographic and clinical details were noted. The maternal outcomes in terms of mode of delivery, signs like shortness of breath, oxygen saturation, ventilator support etc. were noted. For fetal outcomes vertical transmission, APGAR score, birth weight, and admission to Neonatal Intensive Care Unit were analyzed.

Result : No fetal morbidity and mortality were noted, However in terms of maternal morbidity and mortality 1 patient died due to severe Covid -19 infection with respiratory failure .there were five patients who were symptomatic for Covid -19 infection (cough and fever=3) and(bodyache and flu like symptoms in =2). All 20 neonates were observed in the nursery/Neonatal Intensive Care Unit for 24 hours after birth. None of them developed any complication. No vertical transmission of COVID-19 was found on the basis of PCR conducted 1 week apart after delivery.

Conclusion: Only one patient were died due to severe Covid-19 infection .However no vertical transmission is seen in twenty pregnant women's which could be due to that majority of patients were asymptomatic.

Key Words: to quantify the maternal and fetal outcomes and to assess vertical transmission of COVID-19 in pregnant women.

How to cite this

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INTRODUCTION:

Covid -19 has affected millions of population worldwide with no difference in correlation with age and gender .In 2019 Covid-19 Infection were emergent from China. The fatality rate of Covid-19 varies from region to region5.6 % in US, 14 % in UK and 2 % in Pakistan. Around 7 million people were affected by the virus and has caused of about 0.4 million deaths in European and US country with fatality rate of about 5.7 %. Many studies have been done to assess and to understand its response to different conditions. Investigator also assessed the vertical transmission of virus during pregnancy .only few studies have targeted the fatality rate in special populations including Pregnant women in which majority of studies concluded no vertical transmission along with no maternal and fetal outcomes. Initially ,it was not clearly known that whether the pregnant women were are at risk of developing symptoms from infection of Covid-19 in compared of non pregnant women ,a few studies have been published that concluded that there is no difference in relation with clinical characteristics and risk of developing in pregnant and non pregnant women with Covid-19 infection To better understanding on How Covid-19 infections affects the pregnant women and for worldwide interest .we decided to present a Case Series on 20 pregnant women to know the maternal and fetal outcomes along with vertical transmission.

METHODOLOGY

In this case series twenty pregnant women with Covid-19 infection were included. This study is done in Gynae and Obstetrics Department of Isra university Hospital, Hyderabd, Pakistan from December 2020 to May 2021 . Ethics approval for the study was granted by Institutional Review Board (Ref .B /45/EC/203). Clinical record of 20 consecutive pregnant women with COVID-19 was reviewed. The clinical symptoms, laboratory data and pregnancy outcome were analyzed.

Women were investigated by PCR for Covid-19 and by X-Ray chest to confirm the diagnosis of Covid-19 .the diagnosis of Covid-19 were met in all 20 consecutive patients according the guideline was published by the National Health Commission of China .Demographic data of pregnant women

including their age, sign and symptoms, co-morbidities their laboratory test and maternal and fetal outcome were noted .the primary outcome was to assess the rate of vertical transmission from mother to fetus .all the Fetus after the delivery were followed in PICU, where two Nasal Swab sample for RT- PCR were also done as per same guideline of diagnosis of Covid-19 in adults also for the observation of signs of Pneumonia in neonates (oxygen saturation < 93 and R/R > 30 breaths /min). The severity of disease was assessed by the guidelines of World Health Organization for Covid 19.Analysis was conducted by using the SPSS version 21. Categorical variables were quantified as frequency and percentage, while Continuous variables were summarized as means and standard deviations.

Demographic and Clinical profile Table – 1

Case no	Age	Gestational Age	Gravidity	Parity	Routine Antenatal	Labour Pain	Antepartum Hemorrhage	Bleeding	Prelabor Rupture of Membrane	Preterm Labour	Decreased Fetal Movements	Diagnostics	Comorbid	Medicine
1	26	37	4	0	2	2	2	2	1	2	PCR, Chest x-ray	N0		
2	30	38	5	2	1	1	2	2	2	2	PCR, Chest x-ray	DM		
3	23	40	3	0	2	2	2	2	2	2	PCR, Chest x-ray	N0		
4	35	38	2	2	2	2	2	2	2	2	PCR, Chest x -ray	N0		
5	43	38	1	2	2	2	2	2	2	2	PCR, Chest x-ray	HTN		
6	31	38	4	0	1	1	2	2	2	2	PCR, Chest x-ray	N0		
7	28	40	3	2	2	1	2	2	2	2	PCR, Chest x-ray	N0		
8	26	37	2	2	2	2	2	2	2	2	PCR, Chest x-ray	N0		
9	31	40	1	1	2	2	2	2	2	2	PCR, Chest x-ray	N0		
10	40	38	1	0	1	2	2	2	2	2	PCR, Chest x-ray	N0		
11	24	36	5	2	1	1	2	2	2	2	PCR, Chest x-ray	N0		
12	24	36	3	4	2	1	2	2	2	2	PCR, Chest x-ray	N0		
13	27	40	3	3	2	1	2	2	2	2	PCR, Chest x-ray	N0		
14	25	37	2	1	2	2	2	2	2	2	PCR, Chest x-ray	N0		
15	30	39	1	4	1	2	2	2	2	2	PCR, Chest x-ray	N0		
16	31	40	1	2	2	1	2	2	2	2	PCR, Chest x-ray	N0		
17	32	36	2	1	1	2	2	2	1	2	PCR, Chest x-ray	N0		
18	24	36	3	2	2	2	2	2	2	2	PCR, Chest x-ray	N0		
19	40	37	2	2	2	2	2	2	2	2	PCR, Chest x-ray	N0		
20	26	40	1	2	2	2	2	2	2	2	PCR, Chest x-ray	N0		

RESULTS

The average age of pregnant women were 32 ± 4.3 years ranging from minimum 22 years to maximum 43 years. The mean gestational age was 38.0 ± 1.4 weeks. There were 4 cases of SGA whereas the rest of 16 were AGA.Majority of the cases were belongs from the same region of Hyderabad. There were 8 cases with primigravida status and 12 were multigravida table-I. The presentation of pregnant women was varying, 13 were presented with labour pains and 7 were presented for antenatal check-up. Two pregnant women have history of Hypertension and Diabetes There were five patients who were symptomatic for Covid -19 infection (cough and fever=3) and (bodyache and flu like symptoms in =2). The mode of delivery was cesarean in 11 cases, 6 cases had SVD whereas 3 cases had observation table-II.There were 12 baby boys and 8 baby girls born in this case series. The mean birth weight was 3.3 ± 0.4 kg ranging from minimum of 2.9kg to maximum of 4.3kg. The APGAR score at one minute was 7.6 ranging from 6 to 9 whereas at the APGAR score at 5 minutes was 9.5 ranging from 7 to 10. No vertical transmission was noted in 20 pregnant women however one women died due to severe respiratory failure.

Case No	Mode of Delivery	Postpartum hemorrage	Preterm delivery	Respiratory distress	Ventilator support	symptoms	cough	fever	bodyache	dirrhea	Nasal congestion	Chest pain	SOB	sputum	Severe respiratory distress syndrome
1.	Spontaneous vaginal delivery	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2.	Lower segment c-section	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3.	Lower segment c-section	2	2	2	2	2	1	1	2	2	2	2	2	2	2
4.	Lower segment c-section	2	2	2	2	1	1	1	2	2	2	2	2	2	2
5.	Lower segment c-section	2	2	2	2	2	2	2	2	2	2	2	2	2	2
6.	Lower segment c-section	2	2	1	1	1	1	1	1	2	2	2	2	2	1
7.	Lower segment c-section	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8.	Severe vaginal delivery	2	2	2	2	1	2	2	1	2	2	2	2	2	2
9.	Severe vaginal delivery	2	2	2	2	1	1	2	2	2	2	2	2	2	2
10.	Severe vaginal delivery	2	2	2	2	1	2	1	2	2	2	2	2	2	2
11.	Lower segmant c section	2	2	2	2	2	2	2	2	2	2	2	2	2	2
12.	Lower segment c section	2	2	2	2	1	1	2	2	2	2	2	2	2	2
13.	Severe vaginal delivery SVD	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14.	Lowersegmant C section	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15.	Severe vaginal delivery	2	2	2	2	2	2	2	2	2	2	2	2	2	2
16.	Lower segmant C section	2	2	2	2	2	2	2	2	2	2	2	2	2	2
17.	Lower segment C section	2	2	2	2	2	2	2	2	2	2	2	2	2	2
18.	observation	2	2	2	2	1	2	1	2	2	2	2	2	2	2
19.	observation	2	2	2	2	2	2	2	2	2	2	2	2	2	2
20.	observation	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Fetal Outcome Table -2									
Case No	**Fetal Outcome**	**APGAR-1**	**APGAR-5**	**Birth weight**	**Neonatal ICU**	**Covid-19**	**Preterm delivery**	**Jaundice**	**PCR**
1.	Boy	8	10	3,2	1	2	2	2	2
2.	Girl	8	10	3	1	2	2	2	2
3.	Boy	8	9	3.2	1	2	2	2	2
4.	Boy	8	9	3	1	2	2	2	2
5.	Girl	8	9	3.4	1	2	2	2	2
6.	Boy	8	9	3	1	2	2	2	2
7.	Boy	8	10	2.9	1	2	2	2	2
8.	Girl	7	10	4.2	1	2	2	2	2
9.	Boy	7	10	3.5	1	2	2	2	2
10.	Boy	6	7	3.8	1	2	2	2	2
11.	Girl	8	10	3.6	1	2	2	2	2
12.	Boy	9	10	3.6	1	2	2	2	2
13.	Boy	9	10	3.4	1	2	2	2	2
14.	Boy	8	10	3.8	1	2	2	2	2
15.	Girl	7	10	3.8	1	2	2	2	2
16.	Girl	7	9	3	1	2	2	2	2
17.	Boy	7	9	3.1	1	2	2	2	2
18.	Boy	7	10	3.6	1	2	2	2	2
19.	Boy	7	10	3.8	1	2	2	2	2
20.	Boy	9	10	3.7	1	2	2	2	2

DISCUSSION

This current case series shows no vertical transmission from mother to fetus that also similar with the results of other studies from the globe. The effects of the Covid-19 in relation to maternal and fetal outcome is still in initial phases and are unknown ,only few case series studies found different responses that worries the obstetricians around the world to know the exact presentation of Covid-19 in pregnant women .The primary outcome of this current study were to assess the rate of vertical transmission that's not seen in any pregnant women ,this result is similar with many others studies as, Rasmussen et al study shows that fetal outcome may vary like preterm delivery and fetal distress but there is no evidence of in utero transmission of Covid-19 in pregnant women's .study done by Schwartz et al, also shows no evidence of vertical transmission .In our current study six cases have SVD and five observation with no evidence of vertical transmission which also proved with the wuhan study who investigated 19 Covid -19 newborns who were born with infected mother with Covid-19 infection .they also confirmed the Covid-19 infection in second day of newborn .Unlike previous reports on studies based on H1N1 influenza and SARS-CoV where maternal and fetal outcomes were compromised by severe effects of virus SARS-CoV-2 had less side effects as well as vertical transmission rates. In our current case series there are two pregnant women who have PROM with no maternal and fetal complications .A study done by Lieu et al,in which they observed the maternal and fetal complications in case series of emergency C-sections due to either fetal distress or due to premature rapture of membrane they also shows the still birth in one case although the condition of Covid-19 were mild to moderate in all cases .in this current study only one preagnant women were died due to respiratory failure although remaining were not develops any significant adverse events which also proved by many others studies in

relation with Covid-19 infection and maternal and fetal outcomes .In this current study no adverse events occurs in fetus also ,no premature birth were seen ,all the newborn born with average birth weight with no fetal distress , although a study conducted by Zhang et al,shows the reported evidence of birth asphyxia and fetal distress .further studies are needed to understand the effects of Covid-19 in pregnant women's.

CONCLUSION

Our current case series was not found vertical transmission from mother to fetus in affected pregnant women with Covid-19 infection with no serious maternal and fetal outcomes .although further clinical trials are needs to be conducted to know the exact effects of Covid-19 in pregnant women's

Conflict of interest: None.
Financial Support: None.

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Nida Zaki	Analysis and Interpretation of data for work
Uzma Parveen	Conception of study design, acquisition, analysis, and interpretation of data.
Amna	Drafting and methodology, data interpretation

Case series

by Article 1 .....

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Outcome of Covid -19 in twenty pregnant women- A case Series Studies

Nida Zaki , Uzma Parween , Amna

Objective: to quantify the maternal and fetal outcomes and to assess vertical transmission of COVID-19 in pregnant women.

Study Design: A case series.

Place and Duration of Study: Isra University Hospital, Hyderabad, from Dec 2020 to May 2021.
Methodology: In this case series clinical record of 20 consecutive pregnant women was reviewed who presented with COVID-19 in the Gynae & Obstetrics department of Isra University Hospital,Hyderabad ,Pakistan. The demographic and clinical details were noted. The maternal outcomes in terms of mode of delivery, signs like shortness of breath, oxygen saturation, ventilator support etc. were noted. For fetal outcomes vertical transmission, APGAR score, birth weight, and admission to Neonatal Intensive Care Unit were analyzed.

Result : No fetal morbidity and mortality were noted, However in terms of maternal morbidity and mortality 1 patient died due to severe Covid -19 infection with respiratory failure .there were five patients who were symptomatic for Covid -19 infection (cough and fever=3) and(bodyache and flu like symptoms in =2). All 20 neonates were observed in the nursery/Neonatal Intensive Care Unit for 24 hours after birth. None of them developed any complication. No vertical transmission of COVID-19 was found on the basis of PCR conducted 1 week apart after delivery.

Conclusion :

Only one patient were died due to severe Covid-19 infection .However no vertical transmission is seen in twenty pregnant women's which could be due to that majority of patients were asymptomatic.

Introduction: Covid -19 has affected millions of population worldwide with no difference in correlation with age and gender .In 2019 Covid-19 Infection were emergent from China. The fatality rate of Covid-19 varies from region to region5.6 % in US, 14 % in UK and 2 % in Pakistan. Around 7 million people were affected by the virus and has caused of about 0.4 million deaths in European and US country with fatality rate of about 5.7 %. Many studies have been done to assess and to understand its response to different conditions. Investigator also assessed the vertical transmission of virus during pregnancy .only few studies have targeted the fatality rate in special populations including Pregnant women in which majority of studies concluded no vertical transmission along with no maternal and fetal outcomes .

Initially ,it was not clearly known that whether the pregnant women were are at risk of developing symptoms from infection of Covid-19 in compared of non pregnant women ,a few studies have been published that concluded that there is no difference in relation with clinical characteristics and risk of developing in pregnant and non pregnant women with Covid-19 infection

To better understanding on How Covid-19 infections affects the pregnant women and for worldwide interest .we decided to present a Case Series on 20 pregnant women to know the maternal and fetal outcomes along with vertical transmission.

METHODOLOGY:

In this case series twenty pregnant women with Covid-19 infection were included. This study is done in Gynae and Obstetrics Department of Isra university Hospital, Hyderabd, Pakistan from December 2020 to May 2021 . Ethics approval for the study was granted by Institutional Review Board (Ref .B /45/EC/203). Clinical record of 20 consecutive pregnant women with COVID-19 was reviewed. The clinical symptoms, laboratory data and pregnancy outcome were analyzed.

Women were investigated by PCR for Covid-19 and by X-Ray chest to confirm the diagnosis of Covid-19 .the diagnosis of Covid-19 were met in all 20 consecutive patients according the guideline was published by the National Health Commission of China .Demographic data of pregnant women including their age, sign and symptoms, co-morbidities their laboratory test and maternal and fetal outcome were noted .the primary outcome was to assess the rate of vertical transmission from mother to fetus .all the Fetus after the delivery were followed in PICU, where two Nasal Swab sample for RT- PCR were also done as per same guideline of diagnosis of Covid-19 in adults also for the observation of signs of Pneumonia in neonates (oxygen saturation < 93 and R/R > 30 breaths /min). The severity of disease was assessed by the guidelines of World Health Organization for Covid 19.Analysis was conducted by using the SPSS version 21. Categorical variables were quantified as frequency and percentage, while Continuous variables were summarized as means and standard deviations.

Demographic and Clinical profile Table - 1

1.	26	37	4	0	2	2	2	2	1	2	PCR, Chest x-ray	N0
2.	30	38	5	2	1	1	2	2	2	2	PCR, Chest x-ray	DM
3.	23	40	3	0	2	2	2	2	2	2	PCR, Chest x-ray	N0
4.	35	38	2	2	2	2	2	2	2	2	PCR, Chest x-ray	N0
5.	43	38	1	2	2	2	2	2	2	2	PCR, Chest x-ray	HTN
6.	31	38	4	0	1	1	2	2	2	2	PCR, Chest x-ray	N0
7.	28	40	3	2	2	1	2	2	2	2	PCR, Chest x-ray	N0
8.	26	37	2	2	2	2	2	2	2	2	PCR, Chest x-ray	N0

9.	31	40	1	1	2	2	2	2	2	2	PCR, Chest x-ray	N0
10.	40	38	1	0	1	2	2	2	2	2	PCR, Chest x-ray	N0
11.	24	36	5	2	1	1	2	2	2	2	PCR, Chest x-ray	N0
12.	24	36	3	4	2	1	2	2	2	2	PCR, Chest x-ray	N0
13.	27	40	3	3	2	1	2	2	2	2	PCR, Chest x-ray	N0
14.	25	37	2	1	2	2	2	2	2	2	PCR, Chest x-ray	N0
15.	30	39	1	4	1	2	2	2	2	2	PCR, Chest x-ray	N0
16.	31	40	1	2	2	1	2	2	2	2	PCR, Chest x-ray	N0
17.	32	36	2	1	1	2	2	2	1	2	PCR, Chest x-ray	N0
18.	24	36	3	2	2	2	2	2	2	2	PCR, Chest x-ray	N0
19	40	37	2	2	2	2	2	2	2	2	PCR, Chest x-ray	N0
20	26	40	1	2	2	2	2	2	2	2	PCR, Chest x-ray	N0

RESULTS:

The average age of pregnant women were 32 ± 4.3 years ranging from minimum 22 years to maximum 43 years. The mean gestational age was 38.0 ± 1.4 weeks. There were 4 cases of SGA whereas the rest of 16 were AGA.Majority of the cases were belongs from the same region of Hyderabad. There were 8 cases with primigravida status and 12 were multigravida table-I.

The presentation of pregnant women was varying, 13 were presented with labour pains and 7 were presented for antenatal check-up. Two pregnant women have history of Hypertension and Diabetes There were five patients who were symptomatic for Covid -19 infection (cough and fever=3) and (bodyache and flu like symptoms in =2). The mode of delivery was cesarean in 11 cases, 6 cases had SVD whereas 3 cases had observation table-II.

There were 12 baby boys and 8 baby girls born in this case series. The mean birth weight was 3.3 ± 0.4 kg ranging from minimum of 2.9kg to maximum of 4.3kg. The APGAR score at one minute was 7.6

ranging from 6 to 9 whereas at the APGAR score at 5 minutes was 9.5 ranging from 7 to 10. No vertical transmission was noted in 20 pregnant women however one women died due to severe respiratory failure.

Case No	Mode of Delivery	Postpartum hemorrage	Preterm delivery	Respiratory distress	Ventilator support	symptoms	cough	fever	bodyache	dirrhea	Nasal congestion	Chest pain	SOB	sputum	Severe respiratory distress syndrome
1.	Spontaneous vaginal delivery	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2.	Lower segment c-section	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3.	Lower segment c-section	2	2	2	2	2	1	1	2	2	2	2	2	2	2
4.	Lower segment c-section	2	2	2	2	1	1	1	2	2	2	2	2	2	2
5.	Lower segment c-section	2	2	2	2	2	2	2	2	2	2	2	2	2	2
6.	Lower segment c-section	2	2	1	1	1	1	1	1	2	2	2	2	2	1
7.	Lower segment c-section	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8.	Severe vaginal delivery	2	2	2	2	1	2	2	1	2	2	2	2	2	2
9.	Severe vaginal deliver	2	2	2	2	1	1	2	2	2	2	2	2	2	2

	y														
10.	Severe vaginal deliver y	2	2	2	2	1	2	1	2	2	2	2	2	2	2
11.	Lower segma nt c section	2	2	2	2	2	2	2	2	2	2	2	2	2	2
12.	Lower segme nt c section	2	2	2	2	1	1	2	2	2	2	2	2	2	2
13.	Severe vaginal deliver y SVD	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14.	Lowers egman t C section	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15.	Severe vaginal deliver y	2	2	2	2	2	2	2	2	2	2	2	2	2	2
16.	Lower segma nt C section	2	2	2	2	2	2	2	2	2	2	2	2	2	2
17.	Lower segme nt C section	2	2	2	2	2	2	2	2	2	2	2	2	2	2
18.	observati on	2	2	2	2	1	2	1	2	2	2	2	2	2	2
19.	observati on	2	2	2	2	2	2	2	2	2	2	2	2	2	2
20.	observati on	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Fetal Outcome Table -2

Case No	Fetal Outcome	APGAR-1	APGAR-5	Birth weight	Neonatal ICU	Covid-19	Preterm delivery	Jaundice	PCR
1.	Boy	8	10	3,2	1	2	2	2	2
2.	Girl	8	10	3	1	2	2	2	2
3.	Boy	8	9	3.2	1	2	2	2	2
4.	Boy	8	9	3	1	2	2	2	2
5.	Girl	8	9	3.4	1	2	2	2	2
6.	Boy	8	9	3	1	2	2	2	2
7.	Boy	8	10	2.9	1	2	2	2	2
8.	Girl	7	10	4.2	1	2	2	2	2
9.	Boy	7	10	3.5	1	2	2	2	2
10.	Boy	6	7	3.8	1	2	2	2	2
11.	Girl	8	10	3.6	1	2	2	2	2
12.	Boy	9	10	3.6	1	2	2	2	2
13.	Boy	9	10	3.4	1	2	2	2	2
14.	Boy	8	10	3.8	1	2	2	2	2
15.	Girl	7	10	3.8	1	2	2	2	2
16.	Girl	7	9	3	1	2	2	2	2
17.	Boy	7	9	3.1	1	2	2	2	2
18.	Boy	7	10	3.6	1	2	2	2	2
19.	Boy	7	10	3.8	1	2	2	2	2
20.	Boy	9	10	3.7	1	2	2	2	2

Discussion :

This current case series shows no vertical transmission from mother to fetus that also similar with the results of other studies from the globe. The effects of the Covid-19 in relation to maternal and fetal outcome is still in initial phases and are unknown ,only few case series studies found different responses that worries the obstetricians around the world to know the exact presentation of Covid-19 in pregnant women .The primary outcome of this current study were to assess the rate of vertical transmission that's not seen in any pregnant women ,this result is similar with many others studies as, Rasmussen et al study shows that fetal outcome may vary like preterm delivery and fetal distress but there is no evidence of in utero transmission of Covid-19 in pregnant women's .study done by Schwartz et al, also shows no evidence of vertical transmission .

In our current study six cases have SVD and five observation with no evidence of vertical transmission which also proved with the wuhan study who investigated 19 Covid -19 newborns who were born with infected mother with Covid-19 infection .they also confirmed the Covid-19 infection in second day of newborn .

Unlike previous reports on studies based on H1N1 influenza and SARS-CoV where maternal and fetal outcomes were compromised by severe effects of virus SARS-CoV-2 had less side effects as well as vertical transmission rates. In our current case series there are two pregnant women who have PROM with no maternal and fetal complications .A study done by Lieu et al,in which they observed the maternal and fetal complications in case series of emergency C-sections due to either fetal distress or due to premature rapture of membrane they also shows the still birth in one case although the condition of Covid-19 were mild to moderate in all cases .in this current study only one preagnant women were died due to respiratory failure although remaining were not develops any significant adverse events which also proved by many others studies in relation with Covid-19 infection and maternal and fetal outcomes .

In this current study no adverse events occurs in fetus also ,no premature birth were seen ,all the newborn born with average birth weight with no fetal distress , although a study conducted by Zhang et al,shows the reported evidence of birth asphyxia and fetal distress .further studies are needed to understand the effects of Covid-19 in pregnant women's.

Conclusion

Our current case series was not found vertical transmission from mother to fetus in affected pregnant women with Covid-19 infection with no serious maternal and fetal outcomes .although further clinical trials are needs to be conducted to know the exact effects of Covid-19 in pregnant women's

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12. Is the research design (if applicable) adequate to achieve the objective of the study?	Yes ✓	No
13. Are the statistical tests justified?	Yes ✓	No
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13. Are the statistical tests justified?	Yes	No
14. Does it require consultation by a statistician?	Yes	No
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16. Are the tables, figures, photographs useful, relevant (if applicable)	Yes	No
17. Do the results address the aims of the study?	Yes	No
18. Does the discussion explain the findings in comparison with other data available?	Yes	No
19. Conclusions. Are the conclusions appropriate?	Yes	No
20. Does the write up retain balance and give sufficient weightage to contrary viewpoints?	Yes	No

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22. Does it convey the message clearly?	Yes	No
23. Source of Funding, Conflict of Interest is disclosed?	Yes	No

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Original Article

Association of Vitamin D Deficiency with Hypothyroidism

Muhammad Wasif Saleem, Halar Shaikh,
Ali Akbar Pirzado, Shumaila Mahar

ABSTRACT

Background: The main function of vitamin D is to regulate bone metabolism, although its position as an immunological modulator has lately been highlighted. Over the last few years, evidence has accumulated that vitamin D has a crucial role in the prevention of autoimmune disorders. However, there is no solid evidence that it has a role in non-autoimmune thyroid illness.

Objective: The primary objective of this study is to assess the link between vitamin D deficiency and hypothyroidism in patients at tertiary care hospital.

Methodology: This was prospective cross-sectional study, conducted at Department of Pathology, Chandika Medical College, Larkana for a period of one year. The levels of serum vitamin D (25-OH) were tested in 47 healthy people and 47 hypothyroid patients. Vitamin D insufficiency was defined as a concentration of less than 10 ng/ml.

Results: Serum 25(OH) vitamin D levels in hypothyroid patients were substantially higher than in controls (t=11.1, p = 0.003). Female patients had a lower level of it than male patients (t=0.383, p=.712).

Conclusion: A significant association was found between vitamin D deficiency and hypothyroidism in patients as compared to healthy controls, making it important investigation to be performed in routine patients with hypothyroidism.

Keywords: Hypothyroidism, vitamin D deficiency, association, metabolism.

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INTRODUCTION

Vitamin D is essential for calcium homeostasis, as well as the formation and maintenance of the bone skeleton. [1] However, its importance in ion homeostasis, cellular immunity, cell proliferation, and cell differentiation has lately been highlighted. [2] Vitamin D works by binding to receptors located in nearly all organs. Vitamin D receptors (VDRs) are also found in the thyroid gland; the VD receptor in the thyroid belongs to a category of receptors known as nuclear receptors, which are also thyroid hormone receptors. [3]Vitamin D inhibits the occurrence of numerous autoimmune illnesses, inflammatory diseases, and infections through binding to these receptors. [4] Vitamin D insufficiency has been linked to several musculoskeletal illnesses, diabetes, renal disease, cardiovascular disease, and infections in recent studies. [5-9]

Vitamin D has been linked to the control of pro-inflammatory cytokines, regulatory T cells, and immunological response by several studies. [10]They discovered that a lack of vitamin D raises the risk of autoimmune disorders. Vitamin D is also involved in the pathophysiology of DCs, macrophages, CD4 + T, CD8 + T, and B cells during the immune system's Development. [3, 11] Furthermore, it functions as a selective immune inhibitor, suppressing and avoiding the onset of autoimmune disorders such as rheumatoid arthritis, type 1 diabetes, systemic lupus erythematosus, and intestinal inflammatory diseases, as well as encephalopathy. [12, 14]Vitamin D insufficiency has been linked to autoimmune thyroiditis, such as Hashimoto thyroiditis and Grave's disease, according to research. [15-16]

Vitamin D is classified as a fat-soluble nutrient. The main source of vitamin D production in the body is exposure to UV-B radiation (290–320 nm). It enters the circulation after binding to a D-binding protein, then undergoes hydroxylation into 25(OH) D in the liver and formation of the active metabolite, 1, 25 dihydroxy vitamin D (1, 25-(OH)2 D) or calcitriol, in the kidney. The most abundant circulating precursor of active Vitamin D, serum 25(OH)D, is one of the most widely accepted markers of vitamin D status, reflecting both cutaneous and intestinal contributions. [17-18]Serum 25(OH)D has a two- to three-week half-life, whereas 1,25-(OH)2D has a short circulating half-life and is closely regulated by calcium phosphate and parathyroid hormone across a narrow range. [19-20]1,25-(OH) Because a drop in 2D may not appear until severe vitamin D shortage, it is not a good indicator of vitamin D status. As a result, we conducted this research to see how vitamin D insufficiency affects hypothyroidism in comparison to healthy controls.

METHODOLOGY

This was a prospective, cross-sectional study. The study was conducted at Department of Pathology, Chandka Medical College, Larkana for a period of one year (September 2020 to August 2021). A total of 94 participants were included for the study. All participants in this study gave their written informed concerned . Patients with age more than 18 years, non-pregnant, and no history of any chronic illness were included in the study. Patients with age less than 18 years, history of thyroidectomy, pregnancy, ablation by radioiodine, malabsorption disease, chronic comorbid disease, history of calcium or vitamin D supplements, history of alcohol consumption were excluded in this study.

Group A consists of patients with hypothyroidism. If the TSH level was higher than 6.2mIU/ml and the T3 (Ref. range =0.69-2.02ng/ml) and T4 (Ref. range = 4.4-11.6µg/ml) levels were lower than normal, they were identified as hypothyroid patients. Group B consists of healthy control individuals. They had normal clinical and physical examination, no thyroid disease history or chronic disease and those who were not on any vitamin D supplements. Following a thorough medical history and examination, laboratory tests (serum vitamin D and thyroid profile) were performed.

After aseptic precautions, a blood sample was taken from a fasting person via venipuncture, the serum was separated by centrifugation, and the serum was stored at –20oC for a week before being tested. Serum 25(OH)D levels were measured using a chemiluminescent immunoassay technique to determine vitamin D status (Roche Diagnostic Immunoassay E411). When serum 25(OH)D levels are less than 10ng/ml, they are deemed inadequate, and when they are between 10 and 30ng/ml, they are regarded insufficient.

***Statistical* Analysis**

SPSS version 23 for Windows was used to perform statistical analysis on the data. For each variable, the mean and standard deviation (SD) were determined. The outcomes of all examined instances in study groups were compared using the analysis of variance F test (ANOVA). The student's "t" test was used to determine the differences between mean values for each tested variable. Correlation coefficients were used to show the relationships between serum Vitamin D and TSH (r2). When the p value is less than 0.05, the results are considered significant.

RESULTS

Table 1 shows the mean values and standard deviations of all analyzed parameters, as well as the age and sex distribution in all studied groups. In terms of age and sex, there was no statistical difference ($P > 0.05$) between groups. Table 1 shows that serum 25(OH) vitamin D levels in hypothyroid patients were substantially lower than in controls (11.15, $p = 0.05$) when the t-test was used to compare the two groups. When serum 25 (OH) vitamin D levels in hypothyroid individuals were compared by sex distribution, they were shown to be insignificantly lower not females than in males (t=0.383, p=0.712) (Table 2). When the two groups were compared, hypothyroid patients had significantly greater blood TSH levels than controls (t=7.800, p=.000). Table 2 shows that when blood TSH levels in hypothyroid individuals were compared by gender, there was no statistically significant difference between males and females (t= -1.192, p=.267). Serum T4 levels in controls were substantially greater than in hypothyroidism patients (t= -1.959, p=0.046). Serum T3 levels were greater in controls than in hypothyroidism patients (t= -1.262, p =0.213), but the difference was negligible.

There were substantial negative correlations between serum 25 (OH) vitamin D and TSH (r = -0.016, p0.05) in the control group, as well as a strong negative connection with T3 (r = -.311, p=0.033). It was not significantly associated with T4 in any other way. (p=0.078, r = -0.260). However, in the hypothyroid group, there were significant negative correlations between serum 25 (OH) vitamin D and TSH (r = -0.231, p0.05), as well as non-significant positive correlations with T4 and T3 (r = 0.099, r=0.014, and p= > 0.05).

Table 1: Characteristics of Cases and Control (n=94)

Parameters	Case Group	Control Group	p-value
Gender			
Male	9	12	0.41
Female	38	35	0.58
Vitamin D levels (ng/mL)	14.8 ± 2.1	44.5 ± 15.0	0.003
TSH (mIU/mL)	14.40 ± 10.60	2.0 ± 1.1	<0.001
T_3 (pg/mL)	1.10 ± 0.50	1.30 ± 1.30	0.21
T_4 (ng/dL)	7.10 ± 2.70	8.20 ± 2.20	0.04

Table 2: Association of parameters with gender distribution (n=94)

Parameters	Male	Female	p-value
Age (years)	40.90 ± 13.02	40.4 ± 13.10	0.04
TSH (mIU/mL)	16.9 ± 12.7	13.8 ± 10.1	0.26
Vitamin D levels (ng/mL)	15.0 ± 11.3	10.2 ± 8.3	0.04

DISCUSSION

The major function of vitamin D is to maintain bone and mineral homeostasis. However, it has recently been discovered that its insufficiency is linked to a variety of disorders, including autoimmune, inflammatory, and viral diseases. [4]Vitamin D insufficiency has also been linked to several musculoskeletal illnesses, diabetes, renal disease, cardiovascular disease, and infections in recent studies. [5-9]It was also recently shown that vitamin D has significant immunomodulatory effects and takes part in females without any link to sunshine exposure. The findings of this study revealed that hypothyroidism patients have significantly lower vitamin D levels than healthy people. The fact that most of the individuals in this study were females (81 percent in the case group) suggests that hypothyroidism is significantly more common in women. Our findings are in line with those of Vanderpump et al.[21]

In this study, we discovered that mean 25(OH) Vitamin D levels were lower in females than in males in the case group (10.27±8.35, 14.99±11.37 t=0.383, p=0.712) and control group (10.27±8.35, 14.99±11.37 t=0.383, p=0.712). The decline in 25(OH)Vitamin D levels in females may be linked to dress habits that result in insufficient skin exposure to ultraviolet B rays of sunshine. Sunscreen use has increased in recent years for both skin cancer protection and cosmetic purposes. These products with high sun protection factors (SPF) may cause a considerable reduction in previtamin D generation, resulting in vitamin D levels that are insufficient to protect against a variety of chronic diseases. [22]The minimal decline could, however, be ascribed to our study's small sample size. Females had lower levels of 25(OH) Vitamin D, according to Goswami et al's study, however the difference was not significant (p=>0.05). [23]

In this study, we discovered that the hypthyroid group had lower mean Vitamin D levels than the control group. In the hypothyroid group, there was likewise a negative connection between 25(OH)D and TSH (r = -0.231, p0.05). Similarly, Pallavi et al, Amal Mohammed HuseinMackawy et al, Colbay M et al, Mackawy et al, and Fawzy et al found a negative connection between TSH and vitamin D levels. [24-28]

We discovered a positive association between blood Vitamin D and T4, T3 levels in the hypothyroid group in our investigation, and Fawzy et al. observed a similar result. [28] As a result, a Vitamin D deficit may enhance the demise of thyroid follicular cells, resulting in lower thyroid hormone synthesis and, eventually, higher TSH levels. Zhang et colleagues discovered that Vitamin D is involved in thyroid hormone binding to the nuclear receptor, suggesting that a lack of Vitamin D may contribute to lower thyroid hormone levels and higher TSH levels. [29] In an experimental investigation, Byron Richards looked at the effects of vitamin D shortage on the thyroid gland and found that a lack of vitamin D related to the probability of low thyroid hormones. [30]

Patients with hypothyroidism have hypovitaminosis D, according to our findings. Furthermore, the positive significant correlation between blood vitamin D, thyroid hormones, and TSH levels, as well as the negative significant correlation with TSH levels, revealed that serum vitamin D insufficiency was strongly linked to hypothyroidism. As a result, all hypothyroid individuals should be tested for Vitamin D deficiency.

CONCLUSION

Finally, we infer that there is a link between hypothyroidism and vitamin D deficiency. The routine performance of vitamin D levels in patients with hypothyroidism may help in evaluation of multifactorial etiology of underlying cause for proper management. The small number of patients in this study may restrict its capacity to establish that vitamin D insufficiency is directly related to the pathophysiology of hypothyroidism or occurs because of hypothyroidism. As a result, further large prospective clinical trials are needed to investigate the direct impact of vitamin D in patients with thyroid problems.

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Muhammad Wasif Saleem	Conception of study design, acquisition, analysis, and interpretation of data.
Halar Shaikh	Drafting and methodology, data interpretation
Ali Akbar Pirzado	Analysis and interpretation of data for work
Shumaila Mahar	Data Collection

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vit d and hypothyroidism

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ASSOCIATION OF VITAMIN D DEFICIENCY WITH HYPOTHYROIDISM

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ABSTRACT

Background: The main function of vitamin D is to regulate bone metabolism, although its position as an immunological modulator has lately been highlighted. Over the last few years, evidence has accumulated that vitamin D has a crucial role in the prevention of autoimmune disorders. However, there is no solid evidence that it has a role in non-autoimmune thyroid illness.

Objective: The primary objective of this study is to assess the link between vitamin D deficiency and hypothyroidism in patients at tertiary care hospital.

Methodology: This was prospective cross-sectional study, conducted at Department of Pathology, Chandka Medical College, Larkana for a period of one year. The levels of serum vitamin D (25-OH) were tested in 47 healthy people and 47 hypothyroid patients. Vitamin D insufficiency was defined as a concentration of less than 10 ng/ml.

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Keywords: Hypothyroidism, vitamin D deficiency, association, metabolism.

INTRODUCTION

Vitamin D is essential for calcium homeostasis, as well as the formation and maintenance of the bone skeleton. [1] However, its importance in ion homeostasis, cellular immunity, cell proliferation, and cell differentiation has lately been highlighted. [2] Vitamin D works by binding to receptors located in nearly all organs. Vitamin D receptors (VDRs) are also found in the thyroid gland; the VD receptor in the thyroid belongs to a category of receptors known as nuclear receptors, which are also thyroid hormone receptors. [3]Vitamin D inhibits the occurrence of numerous autoimmune illnesses, inflammatory diseases, and infections through binding to these receptors. [4] Vitamin D insufficiency has been linked to several musculoskeletal illnesses, diabetes, renal disease, cardiovascular disease, and infections in recent studies. [5-9]

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METHODOLOGY

This was a prospective, cross-sectional study. The study was conducted at Department of Pathology, Chandka Medical College, Larkana for a period of one year (September 2020 to August 2021). A total of 94 participants were included for the study. All participants in this study gave their written informed permission. Patients with age more than 18 years, non-pregnant, and no history of any chronic illness were included in the study. Patients with age less than 18 years, history of thyroidectomy, pregnancy, ablation by radioiodine, malabsorption disease, chronic comorbid disease, history of calcium or vitamin D supplements, history of alcohol consumption were excluded in this study.

Group A consists of patients with hypothyroidism. If the TSH level was higher than 6.2mIU/ml and the T3 (Ref. range =0.69-2.02ng/ml) and T4 (Ref. range = 4.4-11.6µg/ml) levels were lower than normal, they were identified as hypothyroid patients. Group B consists of healthy control individuals. They had normal clinical and physical examination, no thyroid disease history or chronic disease and those who were not on any vitamin D supplements.

Following a thorough medical history and examination, laboratory tests (serum vitamin D and thyroid profile) were performed.

After aseptic precautions, a blood sample was taken from a fasting person via venipuncture, the serum was separated by centrifugation, and the serum was stored at −20oC for a week before being tested. Serum 25(OH)D levels were measured using a chemiluminescent immunoassay technique to determine vitamin D status (Roche Diagnostic Immunoassay E411). When serum 25(OH)D levels are less than 10ng/ml, they are deemed inadequate, and when they are between 10 and 30ng/ml, they are regarded insufficient.

Statistical Analysis

SPSS version 23 for Windows was used to perform statistical analysis on the data. For each variable, the mean and standard deviation (SD) were determined. The outcomes of all examined instances in study groups were compared using the analysis of variance F test (ANOVA). The student's "t" test was used to determine the differences between mean values for each tested variable. Correlation coefficients were used to show the relationships between serum Vitamin D and TSH (r2). When the p value is less than 0.05, the results are considered significant.

RESULTS

Table 1 shows the mean values and standard deviations of all analyzed parameters, as well as the age and sex distribution in all studied groups. In terms of age and sex, there was no statistical difference ($P > 0.05$) between groups. Table 1 shows that serum 25(OH) vitamin D levels in hypothyroid patients were substantially lower than in controls (11.15, p =

0.05) when the t-test was used to compare the two groups. When serum 25 (OH) vitamin D levels in hypothyroid individuals were compared by sex distribution, they were shown to be insignificantly lower not females than in males (t=0.383, p=0.712) (Table 2). When the two groups were compared, hypothyroid patients had significantly greater blood TSH levels than controls (t=7.800, p=.000). Table 2 shows that when blood TSH levels in hypothyroid individuals were compared by gender, there was no statistically significant difference between males and females (t= -1.192, p=.267). Serum T4 levels in controls were substantially greater than in hypothyroidism patients (t= -1.959, p=0.046). Serum T3 levels were greater in controls than in hypothyroidism patients (t= -1.262, p =0.213), but the difference was negligible.

There were substantial negative correlations between serum 25 (OH) vitamin D and TSH (r = -0.016, p0.05) in the control group, as well as a strong negative connection with T3 (r = -.311, p=0.033). It was not significantly associated with T4 in any other way. (p=0.078, r = -0.260). However, in the hypothyroid group, there were significant negative correlations between serum 25 (OH) vitamin D and TSH (r = -0.231, p0.05), as well as non-significant positive correlations with T4 and T3 (r = 0.099, r=0.014, and p= > 0.05).

Table 1: Characteristics of Cases and Control (n=94)

Parameters	**Case Group**	**Control Group**	**p-value**
Gender			
Male	9	12	0.41
Female	38	35	0.58
Vitamin D levels (ng/mL)	14.8 ± 2.1	44.5 ± 15.0	0.003
TSH (mIU/mL)	14.40 ± 10.60	2.0 ± 1.1	<0.001
T_3 (pg/mL)	1.10 ± 0.50	1.30 ± 1.30	0.21
T_4 (ng/dL)	7.10 ± 2.70	8.20 ± 2.20	0.04

Table 2: Association of parameters with gender distribution (n=94)

Parameters	Male	Female	p-value
Age (years)	40.90 ± 13.02	40.4 ± 13.10	0.04
TSH (mIU/mL)	16.9 ± 12.7	13.8 ± 10.1	0.26
Vitamin D levels (ng/mL)	15.0 ± 11.3	10.2 ± 8.3	0.04

DISCUSSION

The major function of vitamin D is to maintain bone and mineral homeostasis. However, it has recently been discovered that its insufficiency is linked to a variety of disorders, including autoimmune, inflammatory, and viral diseases. [4]Vitamin D insufficiency has also been linked to several musculoskeletal illnesses, diabetes, renal disease, cardiovascular disease, and infections in recent studies. [5-9]It was also recently shown that vitamin D has significant immunomodulatory effects and takes part in females without any link to sunshine exposure. The findings of this study revealed that hypothyroidism patients have significantly lower vitamin D levels than healthy people. The fact that most of the individuals in this study were females (81 percent in the case group) suggests that hypothyroidism is significantly more common in women. Our findings are in line with those of Vanderpump et al.[21]

In this study, we discovered that mean 25(OH) Vitamin D levels were lower in females than in males in the case group (10.27±8.35, 14.99±11.37 t=0.383, p=0.712) and control group (10.27±8.35, 14.99±11.37 t=0.383, p=0.712). The decline in 25(OH)Vitamin D levels in females may be linked to dress habits that result in insufficient skin exposure to ultraviolet B rays of sunshine. Sunscreen use has increased in recent years for both skin cancer protection and cosmetic purposes. These products with high sun protection factors (SPF) may cause a considerable reduction in previtamin D generation, resulting in vitamin D levels that are

insufficient to protect against a variety of chronic diseases. [22]The minimal decline could, however, be ascribed to our study's small sample size. Females had lower levels of 25(OH) Vitamin D, according to Goswami et al's study, however the difference was not significant (p=>0.05). [23]

In this study, we discovered that the hypothyroid group had lower mean Vitamin D levels than the control group. In the hypothyroid group, there was likewise a negative connection between 25(OH)D and TSH (r = -0.231, p0.05). Similarly, Pallavi et al, Amal Mohammed HuseinMackawy et al, Colbay M et al, Mackawy et al, and Fawzy et al found a negative connection between TSH and vitamin D levels. [24-28]

We discovered a positive association between blood Vitamin D and T4, T3 levels in the hypothyroid group in our investigation, and Fawzy et al. observed a similar result. [28] As a result, a Vitamin D deficit may enhance the demise of thyroid follicular cells, resulting in lower thyroid hormone synthesis and, eventually, higher TSH levels. Zhang et colleagues discovered that Vitamin D is involved in thyroid hormone binding to the nuclear receptor, suggesting that a lack of Vitamin D may contribute to lower thyroid hormone levels and higher TSH levels. [29] In an experimental investigation, Byron Richards looked at the effects of vitamin D shortage on the thyroid gland and found that a lack of vitamin D related to the probability of low thyroid hormones. [30]

Patients with hypothyroidism have hypovitaminosis D, according to our findings. Furthermore, the positive significant correlation between blood vitamin D, thyroid hormones, and TSH levels, as well as the negative significant correlation with TSH levels, revealed that

serum vitamin D insufficiency was strongly linked to hypothyroidism. As a result, all hypothyroid individuals should be tested for Vitamin D deficiency.

CONCLUSION

Finally, we infer that there is a link between hypothyroidism and vitamin D deficiency. The routine performance of vitamin D levels in patients with hypothyroidism may help in evaluation of multifactorial etiology of underlying cause for proper management

vit d and hypothyroidism

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Case Report

Fronto-ethmoid Schwannoma "Unusual presentation of Rare Sinonasal Tumor"

Zuhera Khan, Akbar Abbas

Abstract: Epiphora or excessive tearing is usually caused by local eye infection like conjunctivitis, corneal ulcers, trichiasis or ectropion of lid or due to atresia of nasolacrimal ducts in infants. It is case of 32 year old Asian male with no significant social or physiological comorbid has presented with progressive history excessive tearing for 2 years, his symptoms began in Dubai for which he consulted Ophthalmologists who treated him for local causes of epiphora but his symptoms persisted, after two years he had a CT which revealed a mass in frontoethmoidal sinus, a nasendoscopy and excision planned but failed because of excessive bleeding and difficulty in negotiating scope beyond the mass but a piece of mass taken out for histopathology which revealed benign but rare sinonasaltumor"schwannoma." MRI done for better visualization and extent of mass.Open resection performed. Patient is free of symptoms.

Keywords: epiphora, fronto-ethmoid sinus, sinonasalschwannoma.'

How to cite this: K Zuehra, A Akbar. Fronto-ethmoid Schwannoma "Unusual presentation of Rare Sinonasal Tumor" JIMC 2021; 3(2) :228-230

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INTRODUCTION

Schwannomas are benign tumors of peripheral nerve sheaths they develop when Schwann cells grow abnormally. The head and neck region is most common site for schwannoma approximately 25 to 45% of all cases[1]. Most common head and neck schwannoma are acoustic neuroma which occurs as part of syndrome called neurofibromatosis. But they can develop anywhere in peripheral nerve sheaths. However only 4% of head and neck schwannomas involve sinonasaltract.[1] the ethmoidal sinus is most frequently involved; maxillary sinus, nasal fossa, and sphenoid sinus are others respectively. Frontal sinus involvement is extremely rare, and there are only a few reported cases.[1] the involvement of nasal cavity and paranasal sinus is rare and rarely extends intracranially or intraorbitaly[2]. Signs and symptoms of schwannomas depends on location of tumor, in nasal cavity and paranasal sinus it may present as nasal blockage, rhinorrhea, headache, epiphora and epistaxis often recurrent.

Case report:

32 year old male with no known co-morbids presented with progressive history excessive tearing for 2 years, his symptoms began in Dubai where he described an initial period of excessive tearing at certain period of day time but later it progressed to happen throughout the day, he ignored it for couple of months but when severity of tearing has increase he sought medical advice and consulted an ophthalmologist who advised him few topical medication for conjunctivitis, he used those eye drops and felt some relief but after one month he again had same problem and now situation was more worse so he consulted another ophthalmologist who treated him on same line in Dubai, but when tearing was not getting better patient had been referred to ENT specialist who had his CT of paranasal Sinus which showed blockage of right side of nasal cavity and likely causes pointed out to crusting or polyp or tumor. On examination he had Epiphora and his right eye had proptosis. He had no history of recent headaches, anosmia or recent change in behavior, visual disturbance or blackouts. Other features of his history were unremarkable.

INVESTIGATION

A high-resolution CT scan of nose and paranasal sinuses showed hyperdensity of right frontal, ethmoidal maxillary and sphenoidal sinuses and right nasal cavity. The mass has significantly displaced the septum and lateral nasal wall to orbit, causing marked effacement. C shaped septal deformity also present.

Fig:1. Image in left up corner: CT Axial view shows isodense mass filling right nasal cavity, lateral nasal wall bulging into orbit. opacification with loss of aeration seen in right ethmoidal sinus, it's also expanded causing remolding of lamina papyracea in addition to break in lamina papyracea, indenting the medial rectus muscle on right side as well as mild displacement of right eye globe towards temporal side. **See**(image in left lower corner: CT axial view, showed marked bulging of right nose and mass abutting the medial wall of orbit with mild proptosis of right eye with deviated nasal septum. Mass is

sabutting the medial rectus without extension into the right orbital cavity.

Fig.1: Retrobulbar fat planes intact. **See** (image on right side: Ct axial view shows a soft tissue opacification into right maxillary sinus anteriorly with erosion of medial wall of maxillary sinus.

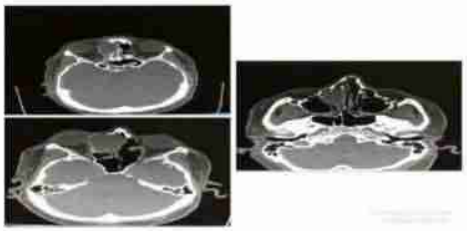


Fig.2: CT scan" coronal views: shows an opacification in right Ethmoid and frontal sinus. Mass is abutting the medial wall of orbit having mass effects of medial rectus and displacing eye ball laterally. Mass is also abutting septum to opposite side. With complete obstruction of right nasal cavity. Erosion of medial wall of maxillary sinus is also noted.

MRI scan performed for better visualization of mass.

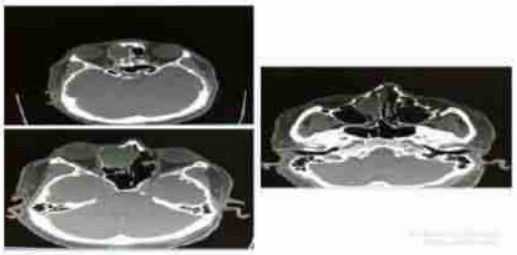


Fig: 3: MRI T1 weighted image in coronal view shows mass in right ethmoid region abutting medial wall of orbit without invasion of orbital cavity

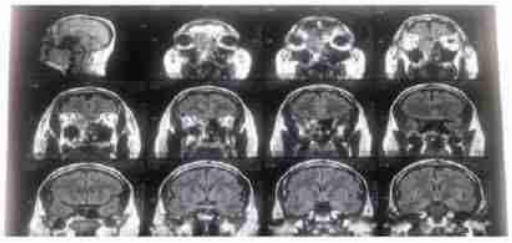
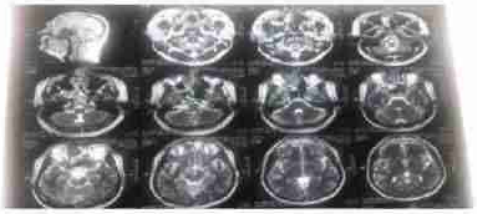


Fig: 4: MRI coronal view, Mass pushing right orbital contents laterally with no radiological invasion of orbital and cranial cavity. Nasendoscopy examination couldn't be done because of complete blockage of nasal cavity in Dubai. Later patient had been referred to consult doctor in Pakistan with his CT report. Biopsy of tumor performed under General Anesthesia, while taking out biopsy patient bled a lot and after taking piece of tissue for histopathology nasal cavity packed and MRI planned. MRI of nose and paranasal sinuses performed meanwhile biopsy report of tumor received which showed Schwannoma. Keeping the rarity of disease and its atypical presentation case had been discussed in MDT for further management.

TREATMENT



Tumor resection planned in MDT and Neurosurgery team was also involved for resection of intracranial portion of schwannoma. Procedure performed under general anesthesia and Open resection of schwannoma done. Approached through lateral Rhinotomy with modified weber Ferguson with frontal sinus extension incision, both sinuses opened, and tumor excised, lamina papyracea found intact. Highly vascular soft lobulated lesion excised, and tissue sent for histopathology. Grossly specimen was from frontal and ethmoidal sinus, it consists of multiple tan brown irregular tissues measuring 5x3.5x1.5cm. Sections reveal polypoidal tissue fragments lines with respiratory epithelium admixed with fragments of neoplastic lesion. The polypoidal tissue fragments show focal areas of necrosis with surrounding abscess formation. The fascicles of spindle shaped cells having elongated pointed nuclei with inconspicuous nucleoli coarse chromatin and moderate eosinophilia cytoplasm. Consistent with ethmoidal and frontal schwannoma, which demonstrated strongly positive immunohistochemical staining for S-100, although negative for Cytokeratin AE1/AE3,EMA, Desmin, ASMA, CD34,SOX-10.

Immediate postoperative period was uneventful.

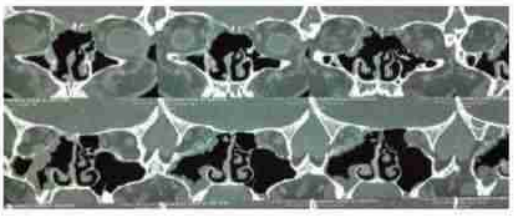
follow-up

on six-month patient is doing well with no recurrence of symptoms.

Patient is disease free at 2 years follow up.

Follow up CT scan performed at 2 months interval which shows no signs of residual disease.

Fig: 5. CT coronal view: Post-surgical scan shows, with loss of opacification and expansion and an air density replacing soft tissue mass, no pressure effects seen on right lamina papyracea.



DISCUSSION

Epiphora as presentation of schwannoma is very rare. Common causes of epiphora are either

overproduction of tears or decreased drainage of tears, resulting in tearing. This can be due to trichiasis and ectropionor nasal obstruction due to polyp or in elderly or in infants because of atresia of nasolacrimal duct. nasolacrimal duct system malformation or trauma to nasolacrimal ducts(iatrogenic or acquired) such as naso-ethemoid region fractures(le fort 1 maxillary fractures) can also cause epiphora. While head and neck is the most common location of schwannomas, the data regarding these tumors in other locations are relatively sparse[5,7,8,9,10,11]. Schwannoma of sinonasal tract are infrequent, accounting less than 4% of schwannomas of the head and neck. The precise origin of a solitary frontal schwannoma is uncertain, as there are many nerves in the region. The lesion may have arisen from any one of the following nerves: (1) General sensory branches of the ophthalmic division of the trigeminal nerve, either from the anterior ethmoidal branch of the nasociliary nerve or the supraorbital or supratrochlear branches of the frontal nerve (2) Parasympathetic fibers carried by branches of the lateral posterior superior nasal nerves (3) Sympathetic fibers carried by branches of the lateral posterior superior nasal nerves[1,12].

schwannoma of nasal cavity may present worsening or intractable nasal obstruction with pain, headache and epistaxis but can occasionally present as ptosis, proptosis or diplopia[3] and very rarely with epiphora as only complaint as in this case. Mostly schwannomas are focal encapsulated lesions can be removed endoscopically but, in few cases, endoscopic resection isn't possible[11].

The diagnosis of sinonasalschwannoma remains challenging and sometimes, clinical behavior and modern imaging can be misleading.

CONCLUSION

Schwannoma is rare, but it has to be added in differential diagnosis of causes of nasal blockage and excessive tearing cases.

Recommendation:

As health professional, I would recommend all general physicians to have good knowledge of common ENT problems which would make referral easy and would provide patient care at best.

**"The author(s) declare(s) that there is no conflict of interest regarding the publication of this article." Publication of this case report is purely academic to help other health professionals diagnosing and treating such rare diseases.

Conflict of interest: None.

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case report by dr zuhera

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Fronto-ethmoidSchwannoma
"Unusual presentation of Rare Sinonasal Tumor"

Abstract:

Epiphora or excessive tearing is usually caused by local eye infection like conjunctivitis, corneal ulcers, trichiasis or ectropion of lid or due to atresia of nasolacrimal ducts in infants. It is case of 32 year old Asian male with no significant social or physiological comorbid has presented with progressive history excessive tearing for 2 years, his symptoms began in Dubai for which he consulted Ophthalmologists who treated him for local causes of epiphora but his symptoms persisted, after two years he had a CT which revealed a mass in frontoethmoidal sinus, a nasendoscopy and excision planned but failed because of excessive bleeding and difficulty in negotiating scope beyond the mass but a piece of mass taken out for histopathology which revealed benign but rare sinonasaltumor"schwannoma." MRI done for better visualization and extent of mass.Open resection performed. Patient is free of symptoms.

Keywords: epiphora, fronto-ethmoid sinus, sinonasalschwannoma

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Introduction

Schwannomas are benign tumors of peripheral nerve sheaths they develop when Schwann cells grow abnormally.
The head and neck region is most common site for schwannoma approximately 25 to 45% of all cases[1]. Most common head and neck schwannoma are acoustic neuroma which occurs as part of syndrome called neurofibromatosis. But they can develop anywhere in peripheral nerve sheaths. However only 4% of head and neck schwannomas involve sinonasaltract.[1] the ethmoidal sinus is most frequently involved; maxillary sinus, nasal fossa, and sphenoid sinus are others respectively. Frontal sinus involvement is extremely rare, and there are only a few reported cases.[1] the involvement of nasal cavity and paranasal sinus is rare and rarely extends intracranially or intraorbitaly[2]. Signs and symptoms of schwannomas depends on location of tumor, in nasal cavity and paranasal sinus it may present as nasal blockage, rhinorrhea, headache, epiphora and epistaxis often recurrent.
Case report:
32 year old male with no known co-morbids presented with progressive history excessive tearing for 2 years, his symptoms began in Dubai where he described an initial period of excessive tearing at certain period of day time but later it progressed to happen throughout the day, he ignored it for couple of months but when severity of tearing has increase he sought medical advice and consulted an ophthalmologist who advised him few topical medication for conjunctivitis, he used those eye drops and felt some relief but after one month he again had same problem and now situation was more worse so he consulted another ophthalmologist who treated him on same line in Dubai, but when tearing was not getting better patient had been referred to ENT specialist who had his CT of paranasal Sinus which showed blockage of right side of nasal cavity and likely causes pointed out to crusting or polyp or tumor.
On examination he had Epiphora and his right eye had proptosis. He had no history of recent headaches, anosmia or recent change in behavior, visual disturbance or blackouts.
Other features of his history were unremarkable.

Investigation

A high-resolution CT scan of nose and paranasal sinuses showed hyperdensity of right frontal, ethmoidal maxillary and sphenoidal sinuses and right nasal cavity. The mass has significantly displaced the septum and lateral nasal wall to orbit, causing marked effacement. C shaped septal deformity also present.
Fig:1. Image in left up corner: CT Axial view shows isodense mass filling right nasal cavity, lateral nasal wall bulging into orbit. opacification with loss of aeration seen in right ethmoidal sinus, it's also expanded causing remolding of lamina papyracea in addition to break in lamina papyracea, indenting the medial rectus muscle on right side as well as mild displacement of right eye globe towards temporal side. See(image in left lower corner: CT axial view, showed marked bulging of right nose and mass abutting the medial wall of orbit with mild proptosis of right eye with deviated nasal septum. Mass is abutting the medial rectus without extension into the right orbital cavity. Retrobulbar fat planes intact.See(image on right side: Ct axial view shows a soft tissue opacification into right maxillary sinus anteriorly with erosion of medial wall of maxillary sinus.
Fig.2: CT scan" coronal views: shows an opacification in right Ethmoid and frontal sinus. Mass is abutting the medial wall of orbit having mass effects of medial rectus and displacing eye ball laterally. Mass is also abutting

septum to opposite side. With complete obstruction of right nasal cavity. Erosion of medial wall of maxillary sinus is also noted.

MRI scan performed for better visualization of mass.

Fig: 3: MRI T1 weighted image in coronal view shows mass in right ethmoid region abutting medial wall of orbit without invasion of orbital cavity

Fig: 4: MRI coronal view, Mass pushing right orbital contents laterally with no radiological invasion of orbital and cranial cavity.

Nasendoscopy examination couldn't be done because of complete blockage of nasal cavity in Dubai. Later patient had been referred to consult doctor in Pakistan with his CT report.

Biopsy of tumor performed under General Anesthesia, while taking out biopsy patient bled a lot and after taking piece of tissue for histopathology nasal cavity packed and MRI planned.

MRI of nose and paranasal sinuses performed meanwhile biopsy report of tumor received which showed Schwannoma. Keeping the rarity of disease and its atypical presentation case had been discussed in MDT for further management.

Treatment:

Tumor resection planned in MDT and Neurosurgery team was also involved for resection of intracranial portion of schwannoma.

Procedure performed under general anesthesia and Open resection of schwannoma done. Approached through lateral Rhinotomy with modified weber Ferguson with frontal sinus extension incision, both sinuses opened, and tumor excised, lamina papyracea found intact. Highly vascular soft lobulated lesion excised, and tissue sent for histopathology.

Grossly specimen was from frontal and ethmoidal sinus, it consists of multiple tan brown irregular tissues measuring 5x3.5x1.5cm. Sections reveal polypoidal tissue fragments lines with respiratory epithelium admixed with fragments of neoplastic lesion. The polypoidal tissue fragments show focal areas of necrosis with surrounding abscess formation. The fascicles of spindle shaped cells having elongated pointed nuclei with inconspicuous nucleoli coarse chromatin and moderate eosinophilia cytoplasm. Consistent with ethmoidal and frontal schwannoma, which demonstrated strongly positive immunohistochemical staining for S-100, although negative for Cytokeratin AE1/AE3,EMA, Desmin, ASMA, CD34,SOX-10.

Immediate postoperative period was uneventful.

follow-up:

on six-month patient is doing well with no recurrence of symptoms.

Patient is disease free at 2 years follow up.

Follow up CT scan performed at 2 months interval which shows no signs of residual disease.

Fig:5. CT coronal view: Post-surgical scan shows, with loss of opacification and expansion and an air density replacing soft tissue mass, no pressure effects seen on right lamina papyracea.

Discussion:

Epiphora as presentation of schwannoma is very rare. Common causes of epiphora are either overproduction of tears or decreased drainage of tears, resulting in tearing. This can be due to trichiasis and ectropionor nasal obstruction due to polyp or in elderly or in infants because of atresia of nasolacrimal duct. nasolacrimal duct system malformation or trauma to nasolacrimal ducts(iatrogenic or acquired) such as naso-ethmoid region fractures(le fort 1 maxillary fractures) can also cause epiphora.

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The diagnosis of sinonasalschwannoma remains challenging and sometimes, clinical behavior and modern imaging can be misleading.

Conclusion:

Schwannoma is rare, but it has to be added in differential diagnosis of causes of nasal blockage and excessive tearing cases.

Recommendation:

As health professional, I would recommend all general physicians to have good knowledge of common ENT problems which would make referral easy and would provide patient care at best.

***"The author(s) declare(s) that there is no conflict of interest regarding the publication of this article." Publication of this case report is purely academic to help other health professionals diagnosing and treating such rare diseases.

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5 "Sinonasal Organized Hematoma", Elsevier BV, 2017

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23. Source of Funding, Conflict of Interest is disclosed?	Yes	No

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Comments For Authors

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