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Validity of Oral Assessment

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Assessment (evaluation) of students is an integral component of any educational process and it is necessary to improve the performance. With the quick advances in medical education, several strategies of teaching and learning are also revised.[1] Oral assessment'(viva-voce) has been used as a mode of assessment for many years in institutions all over the world. It is an essential component of assessment in several undergraduate and postgraduate examinations in medicine. It refers to any assessment of student learning that is conducted, wholly or in part, by spoken word instead of writing.[2] It gives the examiner the opportunity to explore students' depth of knowledge and their ability to express it in a precise manner.[3] It may involve an assessor or assessors posing questions orally, with varying degrees of spoken interaction as the assessment proceeds. But several educationists in their studies have criticized traditional oral assessments for containing poor validity and reliability.[4,5] Validity of an assessment is the degree to which it measures what it is supposed to measure. Variability of the examination is high when questions are not structured. They suggested, structuring of viva will solve all the issues related to the low reliability and validity.[6] The duration of the oral assessments too vary ranging from a few minutes to hours. Assessment is valid when it allows student to fully demonstrate their knowledge, skills and implications in relation to the course they are studying. The concept of validity reveals a number of aspects of oral assessments, each of which deserves attention and it is related to the content and construction of a test. So, it is most commonly referred to types of validity i.e., face validity, content validity, concurrent validity, predictive validity and construct validity.[7] The validity of oral examinations can be increased by the use of structured, standardized orals and by training of examiners.[8]

Designing of assessment is a complex task. We have to keep in mind the level of students, as well as administrative and logistic issues. Furthermore, the discipline to be assessed has its own specifications and we cannot apply one assessment method to all disciplines.[9]

Thereby, structured viva can be more helpful in discriminating good from average performers as per the qualified faculty member's judgment. Introducing structured viva examination can effectively help the examinee to overcome their exam stress and achieve better results. Moreover, structured viva has better face validity as compared to unstructured viva. So, viva examination with good validity emerged as a better assessment tool from both the examiner and student's point of view.

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ORIGINAL ARTICLE

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Significance of Biochemical Parameters of Kala-azar Patients for the Treatment and Prognosis of the Disease in Bangladesh

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ABSTRACT

Introduction: *Kala-azar or Visceral Leishmaniasis (VL) is a protozoal disease caused by the parasite Leishmania donovani and is transmitted by the biting of certain species of female phlebotomine sand-fly. This study was carried out to determine the changes of biochemical parameters in Kala-azar patients those are very much significant for the diagnosis of disease.* ***Methods:*** *This cross-sectional study was done among 56 Kala-azar patients and 30 healthy persons in 'Surjokan to Kala-azar Research Center' (SKRC) in Mymensingh under supervision of Mymensingh Medical College Hospital from July, 2015 to June, 2016. All biochemical parameters were measured according to different recommended methods.* ***Results:*** *This study revealed the changes in SGPT, SGOT, ALP, Serum total protein level, Albumin level, Globulin level and A/G ratio level. The changes of all those parameters were statistically significant ($p<0.001$).* ***Conclusion:*** *According to the study findings, it could be recommended that the changes of biochemical parameters are very important for diagnosis and management of Kala-azar patients. So, the routine biochemical investigation should be done in suspected Kala-azar patients.*

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INTRODUCTION

Leishmaniasis is a group of vector borne diseases which have three main types: visceral, cutaneous and mucocutaneous.[1] Visceral Leishmaniasis (VL) or Kala-azar is a systemic infection of the reticuloendothelial system caused by protozoa *Leishmania donovani* (LD) of the genus *Leishmania*. Genus *Leishmania* was created by Ross in 1903.[2]Sir William Leishman discovered the parasite in spleen smears simultaneously with Charles Donovan identifying the same parasite in spleen biopsy.

The parasite has two forms: aflagellate or amastigote and flagellate or promastigote form. These two forms complete within man and sand-fly respectively. The amastigote exists and proliferates in the mononuclear phagocytic system (MPS), especially spleen, liver and bone marrow. This causes hyperplasia of the MPS in phagocyte bearing organs, producing hematological and biochemical manifestations.[3]

Kala-azar or VL is endemic in more than 60 countries worldwide.[4] In every year about 0.2-0.4 million new cases of VL have been reported globally and more than 90% of the new cases of VL occurred in Bangladesh, India, Brazil, Ethiopia, Sudan, and South Sudan. Twenty four lacs (2.4 millions) disability-adjusted life-years (DALYs) are lost each year due to Kala-azar and the South-East Asia region accounts for the loss of about 0.4 million DALYs. Kala-azar is the disease of poverty and mostly distresses the socially downgraded and deprived communities of the rural population and is recognized as the neglected tropical disease (NTD).[4]

Kala-azar is one of the major public health problems in Bangladesh. In this country 45 districts are endemic for VL and 20 million people (around 18% of the total population), are considered to be at risk for VL. The genetic factors, malnutrition, migration, poor housing and sanitary conditions and the presence of infected animals in the environment are major factors responsible for the high prevalence of this disease.[5]

The clinical feature of VL is characterized by fever, weight loss, splenomegaly, hepatomegaly, skin darkening and anemia which is known as Kala-azar ("black fever" in Hindi).[6] It carries a high mortality ranging from 80% to 100% in untreated cases. Even with treatment, case fatality rates in excess of 10% are common.[7]

Some biochemical parameter changes indicate the occurrence of Kala-azar. Alterations in these parameters occur due to pathophysiological changes of the patient. Biochemical and immunological parameters such as serum bilirubin, serum creatinine, serum glutamic pyruvic transaminase (SGPT), serum glutamic oxaloacetic transaminase (SGOT), alkaline phosphatase (ALP), serum total protein, albumin, globulin, albumin-globulin (A/G) ratio and IgG are important.[8,9]

The aim of this study was to determine the changes in biochemical parameters of Kala-azar patients and compare them with the healthy persons to know the alterations of which parameters are significant to the disease.

METHODS

This cross-sectional type of descriptive study was carried out in the Institute of Biological Sciences (IBSc), Rajshahi University, Rajshahi Bangladesh, during the period of July, 2015 to June, 2016. Kala-azar patients were selected from "Surjokanto Kala-azar Research Center" (SKRC),Mymensingh which is under supervision of Mymensingh Medical College Hospital. There were 56 Kala-azar patients (35 males and 21 females) aged up to 60 years and 30 control groups (18 males and 12 females) were selected from the same socio-demographic background for this study. The patients were free from co-morbidity diseases such as malaria, enteric fever, chronic liver disease, thalassemia, lymphoma, leukemia, diabetes mellitus and hypertension etc. All study subjects were informed about the procedure and their informed written consent were taken before collection of sample. The ethical consent was taken from the authority of SKRC. Socio-demographic data were collected by using structured questionnaires and interviews. Data related to biochemical parameters were collected from the blood sample of the patients. The patients were diagnosed by clinically and rK 39 test. With all aseptic precautions two (2) ml of venous blood was collected from the study subjects and the blood samples were immediately transferred to the anticoagulant e.g. Ethylenediaminetetraacitic acid (EDTA) containing labeled test tube. Serum bilirubin, serum creatinine, SGPT, SGOT, ALP, serum total protein, albumin, globulin, A/G ratio was measured according to different current methods.

All statistical analysis was done by using Statistical Package for Social Science (SPSS), version-20. Results were expressed as Mean±Standard Deviation (SD). Statistical significance of reference between two groups was evaluated by using independent student's *'t'* test and p value <0.05 was considered statistically significant.

RESULTS

In this study, age ranges of study subjects were from 5 to 60 years. Majority (25, 44.60%) of the patients were of 18-40 years age group (Table I).

Table I: Distribution of the study subjects by age group

Age (in years)	Patients (n-56)		Control group (n-30)	
	Frequency	Percentage (%)	Frequency	Percentage (%)
<18	10	17.90	7	23.34
18-40	25	44.60	17	56.66
40-60	21	37.50	6	20.00

Among the patients, 35 (62.5%) were male and 21 (37.5%) were female with M: F ratio of 1.67:1. and the control group 18 (60%) were male and 12 (40%) were female with M: F ratio of 1.5:1 (Figure 1).

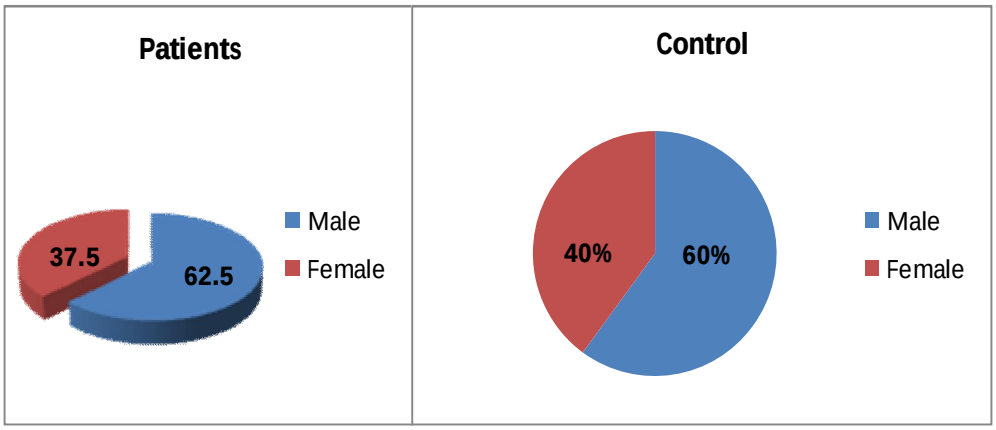

Figure 1: Sex distribution in Kala-azar patients and control group

In this study, almost all (56, 100%) patients complained of fever, 76.8% suffered from weight loss. Darkening of skin and gum bleeding occurred in 60.7% and 37.5% of patients respectively. Most common clinical signs of the patients was splenomegaly (75%) followed by anemia (50%) and hepatomegaly (19.6%) (Table II).

Table II: Symptoms and signs in Kala-azar patients (n-56)

Traits	No. of patients	Percentage (%)
Symptoms		
Fever	56	100
Weight loss	43	76.8
Darkening of skin	34	60.7
Gum bleeding	21	37.5
Signs		
Anemia	23	50
Splenomegaly	42	75
Hepatomegaly	11	19.6
Hepatosplenomegaly	7	12.5
Lymphadenopathy	5	8.9

*Multiple responses

Serum ALP (178.9±21.1 U/L), total protein (98.38 ± 2.3 g/L), globulin (65.22 ± 2.8 g/L) and A/G ratio (0.63 ± 0.06) were significantly increased in Kala-azar patients in comparison to control group. Serum creatinine was normal (1.01 ± 0.05 mg/dl), but serum bilirubin was slightly increased (0.97± 0.05 mg/dl) (Table III).

Table III. Comparison of biochemical parameters

Parameters	Kala-azar patients	Controls	*p*-value	Inferences
Bilirubin (mg/dl)	0.97± 0.05	0.95 ± 0.09	0.877	n.s
S. Creatinine (mg/dl)	1.01 ± 0.05	0.85 ± 0.03	0.063	n.s
ALP (U/l)	178.9±21.1	83.36 ± 4.21	0.0001	*
SGOT (U/l)	20.17 ± 1.2	14.59 ± 0.62	0.002	*
SGPT (U/l)	52.13±1.99	31.33 ± 3.42	0.003	*
Total protein (g/L)	98.38 ± 2.3	76.92 ± 1.2	0.0001	*
Albumin (g/L)	33.10 ± 1.2	41.10 ± 0.77	0.0001	*
Globulin (g/L)	65.22 ± 2.8	35.8 ± 1.05	0.0001	*
A/G ratio	0.63 ± 0.06	1.17 ± 0.04	0.0001	*

n.sNon-significant, *Significant

DISCUSSION

This study was carried out to determine the changes in biochemical parameters of Kala-azar patients and to compare with the healthy person. These biochemical changes are useful for the diagnosis and treatment of the patients to evaluate the prognosis of the disease.

In this study, out of 56 Kala-azar patients, male was 62.5% and female was 37.5%. Bhowmick et al.[10] found that the prevalence of Kala-azar was higher in male (51.22%) than female (36.96%). Boggiatto et al.[11] showed that male patients (40,56.3%) were higher than female patients (31,43.7%). Another study conducted by Singh et al.[12] established that infection of VL had higher in males than females in India. These results were consistent to our findings due to occupational variation.

Fever and weight loss were the common symptoms in Kala-azar patients due to infection and anorexia. Gum bleeding and darkening of the skin were also present possibly due to thrombocytopenia. Regarding the signs, anemia was common in the patients. The presence of anemia in Kala-azar patients would suggest haemolysis, hypoplasia of bone marrow and intravascular volume contraction.[13] In our study, splenomegaly (75%) was the most marked signs in Kala-azar patients as a result of haemolysis in spleen. In a study conducted by Islam et al.,[14] splenomegaly was reported to be present in 100% patients, but it may be absent in immunocompromised patients, such as those who are HIV positive, renal transplant recipients, hematological malignancies and are on long-term steroid therapy. Several studies[15,16] revealed that splenomegaly may be absent in acute cases, or in the early stages of the disease. Besides, hepatomegaly, hepatosplenomegaly and lymphadenopathy were less frequent in those patients.

In our study, serum bilirubin was not significantly increased in Kala-azar patients. This finding is similar with other study conducted in Kala-azar endemic areas of Malda District, West Bengal, India. It established the early stage of infection.[17]

Serum creatinine level was found normal (1.01±0.05 mg/dl of blood) in both patients and control group of our study. Ganguly et al.[17] and Caldas et al.[18] showed that serum creatinine level was 0.66 and 1.21±1.24 mg/dl of blood respectively. These findings revealed that Kala-azar does not hamper the renal function.

In this study serum SGPT, SGOT and ALP level were significantly increased than the control group due to functional disturbance of liver. This finding is almost similar to other study conducted in Etheopia by Tesfanchal et al.[19]

Changes in serum albumin and globulin level were significant in Kala-azar patients. Caldas et al.[18] reported same change in their study. Gatto et al.[9] showed that patients had lower albumin (hypoalbuminemia) levels compared to the control group. Hypoalbuminemia in Kala-azar

patients would suggest intravascular volume contraction, malnutrition, infections etc.

Study limitations were short study period, small sample size, and localized study area. Further study may be done on hematological and immunological parameters of Kala-azar patients on large sample size including the region of Jamalpur, Tangail and Sirajganj district of Bangladesh.

CONCLUSION

In this study, we found that serum SGPT, SGOT, ALP, globulin level was significantly increased and serum albumin level significantly decreased in Kala-azar patients than the control group. So, these changes of biochemical parameters are very much helpful for diagnosis and treatment of Kala-azar.

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Conflict of Interest: The authors declare no conflict of interest.

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ORIGINAL ARTICLE

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Nutritional Status of Adult Santhals in the Selected Region of the Northern part of Bangladesh

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ABSTRACT

Introduction: *Santhals are the largest tribal in northern part of Bangladesh; those are at risk of under nutrition due to poverty and improper health seeking behavior. This study was conducted to assess the nutritional status based on Body Mass Index (BMI) and Chronic Energy Deficiency (CED) among the adult Santali of Northern region of Bangladesh.* ***Methods****: This cross-sectional study was carried out in the department of Anatomy, Dhaka Medical College, and Dhaka from July, 2013 to June, 2014. A total of 385 (193 male and 192 female) adult Santhal agricultural laborer, age ranging from 25 to 50 years were randomly selected from three Santhals villages named: Sundarpur and Joykrishnapur of Rajshahi districts and Bhabicha of Naogaon districts. Personal information and anthropometric measurements were recorded by a prepared questionnaire and on a data sheet following interview and examinations of the participants respectively. Body Mass Index was calculated from the anthropometric measurements of height and weight ratio. Nutritional status based on BMI was evaluated and Chronic Energy Deficiency was classified using the internationally accepted BMI standards. Statistical analysis was done by unpaired student's 't' test.* ***Results:*** *Results revealed that mean height, weight and BMI of Santhal male were 160.69±3.91 cm, 54.54±4.06 kg and 21.12±1.30kg/m²; whereas in female 148.22±6.53 cm, 44.82±5.30 kg and 20.43±2.37 kg/m² respectively. Normal BMI is observed for Santhal who have fixed income source like cultivation of own land (20, 10.36% male), share cropping and wage earning (60,31.08% male and 60,31.25% female), animal husbandry and wage earning (90, 46.87 %in female).The extent of under nutrition in the form of underweight (BMI<18.5) is more among landless (60,31.08% male and 42,21.87% female) Santhal who depend only on wage earning for livelihoods. The overall frequency of under nutrition was more in female (74,38.54%) than male (51, 26.42%) Santhal.* ***Conclusion:*** *There is an urgent need for intervention programmes for improving under nutrition among Santhal with special focus on female.*

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INTRODUCTION

Tribal communities are isolated from general population and are socially and economically vulnerable.[1] Their geographical isolation, primitive agricultural practices, socio-cultural taboos, lack of formal education, poor infrastructure facilities, improper health seeking behavior, poverty etc., have always led them to

develop various morbidities and under nutrition. The dietary pattern and living condition of the tribal is different from the general population.[2] There are about 29 ethnic communities in Bangladesh, among them the Santhal is one of the largest communities.[3] Originally the Santhal were the inhabitants of Santhal Parganas of India. After Santhal rebellion in 1855, they migrated to different regions including Bangladesh in search of livelihood.[4] Now a days they are inhabitants of the greater districts of Dinajpur, Rangpur, Rajshahi, Naogaon and Chapainawabganj of Rajshahi and Rangpur divisions.

The Santhal belongs to the Proto-Australoid race and retains to an aboriginal language, known as Santhali. Primary occupation of the Santhal is agriculture but food gathering, hunting, fishing and animal husbandry are also their important subsidiary occupations. Both men and women take part in agricultural activities. The main food of the Santhal is boiled rice. Santhal village is the most important socio-economic and political unit. Every village has a 'Panchayet' to maintain law and order. The Santhal are divided into 12 totemic tribes. These are: 1) Hansda, 2) Marndi, 3) Soren, 4) Hembrom, 5) Tudu, 6) Kisku, 7) Murmu, 8) Baske, 9) Besra, 10) Pauria, 11) Chore and 12) Bedea. These tribes are hierarchically ordered on the basis of occupation, like: Klisku (raja), Marndi (wealthy/rich), Murmu (priest) or Soren (Warrior or Sipai). Among them Pauria, Chore and Bedeatribes are on the verge of extinction.[5]

Nutritional status of a population is an important tool to study health of any population.[6] World Health Organization (1995) has recommended that anthropometry could be used to assess the nutritional and health status of adults. One such measure now in widespread use is Quetelet's index, better known as body mass index (BMI). This measure was an attempt by the 19th century mathematician Lambert Adolphe Jacques Quetelet to describe the relation between body weight and stature in humans.[7]

Although adult nutritional status can be evaluated in many ways, the BMI is most widely used because it's use is simple, inexpensive, safe and suitable for large scale surveys.[8] A BMI<18.5 kg/m² is widely used as a practical measure of chronic energy or hunger deficiency (CED), i. e., a 'steady' underweight in which an individual is in energy balance irrespective of a loss in body weight or body energy store.[9] CED is caused by inadequate intake of energy accompanied by high level of physical activities and infection.[10]

Like other tribal population, livelihoods of Santhal also require high level of physical activity. Different study revealed that their dietary energy intake is not adequate to compensate their heavy physical workload. BMI is generally considered a good indicator of not only the nutritional status but also the socio-economic condition of a population, especially adult population of developing countries.[11]

A good number of researches were carried out on determination of nutritional status based on BMI of different tribal and non-tribal groups in different countries. Inadequate work is found in Bangladesh regarding nutritional status of tribals specially the Santhals. Considering the urgent need to evaluate nutritional status of Santhal tribes, the present study was aimed to determine BMI and the prevalence of Chronic Energy Deficiency (CED) and its effect on productivity of population.

METHODS

This cross-sectional study was carried out in the department of Anatomy, Dhaka Medical College, Dhaka from July, 2013 to June, 2014. The sample size was 385 adult Santhals (193 male and 192 non-pregnant and non-lactating female from villages: Sundarpur and Joykrishnapur of Godagari Thana of Rajshahi districts and Bhabicha of Neyamutpur Thana of Naogaon districts. The selection of study area is entirely on the basis of concentration of tribal population. The age group is selected 25-50 years purposively as our study is designed to evaluate nutritional status of productive group of Santhal tribal of Northern region of Bangladesh. This study covers two aspects: A. Some selected socio-economic characteristics of the study subjects and B. Assessment of nutritional status from anthropometric measurements.

Prior permission and informed written consent was taken from the headman of the respective

village Panchayet. According to their advice the measurements were taken in a closed door class room of respective village's primary school where enough space was available and proper privacy was maintained. Personal information and anthropometric measurements were recorded on prepared questionnaire and data sheet following interview and examinations of the participants respectively. With the help of stadiometer and weighing scale, height and body weight were measured following NHANES guideline.[12]

BMI was computed using the following standard equation: BMI= Weight (kg)/height(m^2)[7]

Nutritional status was evaluated using internationally accepted BMI guidelines (WHO, 1995).[13]

The following cuts off points were used:

Chronic energy deficiency (CED): BMI < 18.5, Normal: BMI = 18.5-24.9, Overweight: BMI ≥ 25.0.

We followed World Health Organization's classification (1995) of the public health problem of low BMI based on adult populations worldwide. This classification categories prevalence according to percentage (%) of a population with BMI<18.5.[14]

CED Grade-I /Mild: BMI<18.5-17.0

CED Grade-II/ Moderate: BMI <17.0-16.0

CED Grade-III/ Severe: BMI < 16.0

Data were analyzed with the help of SPSS version 19.0 and statistical analysis were done by unpaired student's 't' test.

RESULTS

Among 385 adult Santhals, most (230, 59.74%) of them were in 31 to 40 years age group. Majority (270, 70.13%) of them completedtheir primary school (Table I).

Table I: Socio-economic characteristics of the respondents (n-385)

Particulars	Male(193)	Female(192)	Total(n-385, 100%)
Age:			
≤30 years	33(17%)	52(27.08%)	85 (22.08%)
31-40 years	120(62.18%)	110(57.29%)	230 (59.74%)
40-50 years	40(20.73%)	30(15.62%)	70 (18.18%)
Educational status:			
Illiterate	40(20.72%)	47(23.96%)	86 (22.34%)
Primary school	130(67.35%)	140(72.91%)	270 (70.13%)
SSC	18(9.3%)	5(2.6%)	23 (05.97%)
HSC	5(2.59%)	1(.52%)	6 (01.56%)
Dietary pattern and food habit: *			
Three meal	53(27.46%)	45(23.43%)	98 (25.45%)
Two meal	120(62.17%)	115(59.89%)	235 (61.04%)
Often skipping meal	10(5.18%)	32(16.66%)	42 (10.91%)
Inter meal snacks and tea	190(98%)	185(96%)	375 (97.40%)
Other addicting substance	193(100%)	170(89%)	363 (94.29%)
Source of income:*			
Cultivate only own land	20(10.36%)	00	20 (05.19%)
Farming on own land and share	53(27.46%)	00	53 (13.77%)
cropping	60(31.08%)	60(31.25%)	120 (31.17%)
Share cropping and wage earning	60(31.08%)	42(21.87%)	102 (26.49%)
Only wage earning	00	90(46.87%)	90 (23.38%)
Wage earning and animal husbandry			

*Multiple Responses

Santhals have habits of taking meal twice (235, 61.04%) in a day with slight exception i.e. in morning or evening and all (193, 100%) males have bad habit of taking liquor whereas most (170, 89%) of the female chewed betel/tobacco leaf for refreshment. Regarding source of income, most of the Santhal (120, 31.17%) are used to share cropping and wage earning, a very few cultivate their own land (20,05.19 %) (Table I).

Table II: Mean Height, Weight and BMI of the study subject (n-385)

Sex	Height(cm) Mean±SD	Weight(kg) Mean±SD	Body mass index (kg/m^2)Mean±SD
Male	160.69±3.91 (144.00-170.00)	54.54±4.06 (44.00-65.00)	21.12±1.30 (15.82-25.88)
Female	148.22±6.53 (140.00-160.00)	44.82±5.30 (30.00-59.00)	20.43±2.37 (14.37-24.80)
P value	0.0001***	0.0001***	0.012*

Figures in the parentheses indicate range. Comparison between male and female was done by unpaired Student's 't' test, * =significant at p<0.05, ***=significant at p<0.001.

Significant difference was observed in height, weight and BMI between Santhal male and female (p<0.05). BMI of Santhal male and female were ranged from 15.82-25.88 kg/m² and 14.37-24.80 kg/m² respectively and the average value of BMI in male was 21.12±1.30 kg/m² and in female was 20.43±2.37 kg/m² (Table II).

Table III: Nutritional status based on Body Mass Index

Sex	Underweight BMI<18.5	Normal 18.5≤BMI<25	Overweight BMI≥ 25	Total
Male	51(26.42%)	132(68.39%)	10(5.18%)	193(100%)
Female	74(38.54%)	118(61.45%)	00	192(100%)
Total	**125(32.46%)**	**250(64.93%)**	**10(2.59%)**	**385(100%)**

Parenthesis given percentage.

About 32.46% of the respondents suffered from underweight. The overall frequency of underweight (<18.5kg/m²) was more in female (74, 38.54%) than male (51, 26.42%) Santhals (Table III).

Table IV: Percentage distribution of Chronic Energy Deficiency (n-125)

Thinness/ Grades	Male	Female	Total
Mild/CEDGrade-I 17.0-18.5	45(36%)	60(48%)	105(84%)
Moderate/CED Grade-II 16.0-17.0	6(4.8%)	12(9.6%)	18(14.4%)
Severe/CED Grade-III <16.0	00	2(1.6%)	2(1.6%)
Total	**51(40.8%)**	**74(59.2%)**	**125(100%)**

Parenthesis given percentage

Among CED (BMI<18.5), Maximum (105, 84%) was CED Grade-I. Severe form of CED Grade-III was found in 1.6% female (Table IV).

DISCUSSION

BMI is generally considered a good indicator of the nutritional status as well as socioeconomic condition of a population.[11] A good number of researches were carried out on determination of nutritional status based on BMI of different tribal and non-tribal groups in different countries.

Various demographic factors like age, education, food habit, living condition and occupation of participants have a positive influence in the nutritional status of the people.[2] So, different demographic characteristics have been included along with anthropometric measurements. Data obtained from the demographic characteristics in our present study revealed that 79.27% male and 75.52% female are literate and most of them (60%) from 31-40 years of age group. Each village selected in this study has its own primary school. So, most of the participants completed their primary education which may not reflect the actual picture. Very few of them completed SSC and HSC which reflects less higher education facility among them.

Data in the present study shows that daily diet of the Santhal contains watery rice or hot rice with leafy vegetables, pulses or sometimes a little amount of meat or fish which is usually taken twice in a day. A small group among the landless wage earner often skip their evening meals specially females. Besides main meal, they frequently used to take tea, muri or chira as snacks during work. This habit affects their appetite and hampered iron absorption from consumed food.[15] It is shocking to see that Santhal men are extremely addicted to liquor whereas the most of the women are addicted to betel/tobacco chewing for refreshment. These unhealthy practices hinder the health of Santhaltribe. These findings are consistent with the dietary habit found among tribals (Koyas, Lambadas and Kondareddies) of Andhra Pradesh,[1] Oraon, Sarak, Dhimal of eastern India,[11] Santhal of West Bengal,[16] Bathudis and Savartribals of Odisha.[17,18] Similar to my study, their daily diet lacks of protein and contains rice or wheat product or other cereals like joar, bazra with leafy vegetables and pulses. Almost all of the males are addicted to drinking tea or have regular habit of chewing betel or tobacco leaf and regular consumption of locally produced alcohol. These monotonous food habits, protein lacking carbohydrate rich diet, regular habit of liquor consumption, inadequate knowledge of food and health seeking behavior hinders their general health similar to our study.

Body Mass Index (BMI) is found to depend upon the income of the respondents and physical activities. Normal BMI is observed for Santhal have fixed income source like cultivation of own land, share cropping and animal husbandry. The extent of under nutrition in the form of underweight (BMI<18.5) is more among landless. In the present study, BMI of male is found higher than female. So, sex variation is highly significant (0.012*). According to Bose and Chakra-barty[17]mean BMI of adult Bathudis of Odisha were 18.4±1.9 kg/m^2 in male and 17.9±2.5 kg/m^2 in female. Similarly Roy and Choudhury[19] found mean BMI 18.21±1.45 in kg/m^2 and 17.93±1.35 kg/m^2 in adult Oraons male and female agricultural labourers respectively of Jalpaiguri district of West Bengal. Along with those studies, this present study revealed that usually tribals were malnourished and female suffered more.

Chronic Energy deficiency (CED) is caused by inadequate intake of diet accompanied by high level of physical activities and infection. It is associated with performance and productivity. In this study, it is revealed that both men and women took part in agricultural activities but females often lack proper diet in landless families. So, prevalence of malnutrition was comparatively higher in female than male. Although, the study was conducted on adult (25-50 years) Santhal agricultural labourers, most of them (60%) were found from 31-40 years of age group that was also the major reproductive age. Undernourished women are more prone to have low birth weight babies with adverse pregnancy outcome.[8] So, this study reveals an alarming picture of nutritional status of Santhal tribes of northern region of Bangladesh which needs immediate intervention programme. Besai and Bose[8] also reported severe form of under

nutrition or chronic energy deficiency among adult tribal of West Bengal, India. Finally they concluded the same implication about the undernourished tribal women.

Similar to Ghosh and Malik[5] present study revealed that out of 12 totemic tribes of Santhal only 8 were found among respondents excluding Besra, Pauria, Chore and Bedea. However, these tribes have no influence on nutritional status as the occupational hierarchy is not maintained now a days.

This study was carried out on only three hundred eighty five participants of age ranging from 25-50 years from the nearest Santhal villages of Northern region. So, the obtained data cannot be generalized for the whole Santhals population of Bangladesh. Further studies with larger sample size including all age group from a wide range of area were recommended to get the exact picture.

CONCLUSION

Tribal communities are relatively more vulnerable to food and nutrition insecurity compared to their non-tribal counterparts. Therefore, there is a need for effective implementation of health and nutritional programs among the study populations for improvement of under nutrition with special focus on female.

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ORIGINAL ARTICLE

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Assessment of Nursing Services at Combined Military Hospital Dhaka: In-patients' Perspective

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ABSTRACT

Introduction: *Nurses in hospitals are responsible for patients' care, where as the physicians are accountable for cure. Patients' satisfaction with nursing care complements the comprehensive management of patient. That reflects the fulfillment of the treatment and early recovery of the patient. This study explored the expected satisfaction of in-patients with the nursing care in the Combined Military Hospital, Dhaka to take the necessary steps consequently.* ***Methods:*** *This is a qualitative behavioral health research utilizing purposive sampling. Data collected on status of satisfaction with nursing care from 52 patients using Likert scale and draw etic interpretation on the information generated by data analysis.* ***Results:*** *Highest eight (15.4%) of the healthcare seekers belonged to the age groups 35–40 and 60–65 years, 36 (69.2%) were male, 21(40.4%) had completed 11–15 years of schooling, and 25(48.1%) had monthly income of Tk. 15000–30000. Among the patients, 42 (80.8%) perceived satisfaction regarding 'mutual respect and courtesy' with nurses, and 37 (71.2%) perceived nurses 'attend call immediately'. This study revealed that the patients who perceived satisfaction majority seven (13.5%) belonged to each of the age groups 18–25 years and 60–65 year. On the other hand, 17 (40.5%) of the patients had completed 6–10 years of schooling, 19 (45.2%) patients were employed in public services and 21 (50.0%) had monthly income of Tk. 15,000–30,000. Using Likert scale, majority 28(53.8%) agreed that 'nurses listen to patients carefully', 23 (44.2%) agreed that 'nurses explain things to the patients in an understandable way', while 30 (57.7%) agreed that 'nurses assist patients in personal care'. Out of possible highest Liker mean score of 5, the scores for each of these three items were 4.0, 4.2 and 3.6 respectively.* ***Conclusion:*** *There remains scope for further improvement of nursing services at the Combined Military Hospital Dhaka. It can be done by creating more opportunity for employment of nurses and enhancing their continued training. For sustained satisfaction of patients, studies to understand the perception and satisfaction of nurses in their profession are indicated.*

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INTRODUCTION

In any health care service, role of nursing cannot be dishonor. Nursing means care of individuals irrespective of age, sex, race and religion. Nursing services have been playing a significant role in health promotion, disease prevention; health education and safe environment.[1] Nurses need to be sympathetic and proactive for providing acceptable service.[2] Basically, physicians provide treatment to the patients, while nurses ensure the care and instruction to the patients. Satisfaction and early recovery of the patients depend on cooperative relationship between nurses and patients. Sympathetic attitude of nursing uphold the foundation of this relationship.[1] Purpose of this study was to explore the observable satisfaction of nursing care among the in-patients departments at Combined Military Hospital, Dhaka (CMH Dhaka), which needs to identify the areas for improvement as regard to patient care.

METHODS

This was a qualitative study utilizing tools of health behavioral sciences and all conventionalities of the study were completed from July, 2020 to February, 2021. This study was carried out in 10 out of 70 in-patient departments of Combined Military Hospital Dhaka. Face-to-face interview was conducted to pick up some data on selected socio-demographic variables of patients. It was also used for collecting data about their perceptions on nursing care regarding listening capacity, explaining ability, and assisting personal care. In addition, data also collected regarding perceptions on mutual respect and courtesy between patients and nurses, and nurses' response to patients' calls. A total of 52 admitted patients, aged 18–65 years of both sexes were selected through purposive sampling procedure. Patients with cognitive impairment and in debilitating condition were excluded from this study. A qualitative analysis on status of satisfaction of patients was done by using Likert scale. Informed verbal consent was taken from the patients, and other ethical issues were taken care of too.

RESULTS

Data of the socio-demographic variables of the patients are shown in Table I. Among the 52 patients, highest 8 (15.4%) belonged to each of the age groups 35–40 years and 60–65 years. The least 3 (5.8%) patients were in the age group 25–30 years, as shown in Table I. Male accounted for 36 (69.2%) patients, while the rest were female. About marital status, 46 (88.5%) were married living with spouse and 6 (11.5%) were unmarried. Majority 21 (40.4%) of the patients had completed 6–10 years of schooling, while 8 (15.4%) were illiterate. Highest 26 (50.0%) of the patients were employed in public services, while about 13 (25.0%) were homemakers. Among the patients, the highest 25 (48.1%) had monthly income of Tk. 15,000–30,000, while 23 (44.2%) had monthly income Tk. <15,000. Armed Forces Personnel accounted for 32 (61.5%) and wards accounted for 20 (38.5%) of the patients.

Table I: Socio-demographic variables of the patients (n-52)

Variable	Subcategory of variable	Number	%
Age in year	18–25	7	13.5
	25–30	3	5.8
	30–35	6	11.5
	35–40	8	15.4
	40–45	7	13.5
	45–50	4	7.7
	50–55	5	9.6
	55–60	4	7.7
	60–65	8	15.4
	Total	**52**	**100.0**
Sex	Male	36	69.2
	Female	16	30.8
	Total	**52**	**100.0**
Marital status	Married (living with spouse)	46	88.5
	Unmarried	6	11.5
	Marital dissolution	0	0.0
	Total	**52**	**100.0**
Completed years of schooling	Illiterate	8	15.4
	1–5	2	3.8
	6–10	20	38.5
	11–15	21	40.4
	16+	1	1.9
	Total	**52**	**100.0**
Occupation	Dependent/Unemployed/Student	4	7.7
	Public service	26	50.0
	Private service	0	0.0
	Business	1	1.9
	Homemaking	13	25.0
	Retired	6	11.5
	'Others'	2	3.8
	Total	**52**	**100.0**
Monthly income (Taka)	<15,000	23	44.2
	15,000–30,000	25	48.1
	>30,000	4	7.7
	Total	**52**	**100.0**
Entitlement in CMH	Armed Forces	32	61.5
	Ward	20	38.5
	Total	**52**	**100.0**

The study revealed that 42 (80.8%) patients perceived satisfaction,9 (17.3%) perceived unsatisfaction, while 1 (1.9%) was undecided regarding mutual respect and courtesy with nurses. About 37 (71.2%), 10 (19.2%) and 5 (9.6%) of patients respectively perceived that nurses attend call immediately, attend call lately, and do not attend call. In response to whether 'nurses' assist in patients' personal care', 30 (57.7%) patients agreed that they did, while 12 (23.1%) were neutral in their opinion, as displayed in Table II.

Table II: Distribution of dependent variables of patients (n-52)

Variable	Subcategory of variable	Number	%
Satisfaction status (based on mutual respect and courtesy)	Satisfactory	42	80.8
	Unsatisfactory	9	17.3
	'Not sure'	1	1.9
	Total	**52**	**100.0**
Lag-time in response	Attend call immediately	37	71.2
	Attend call lately	10	19.2
	Do not attend call	5	9.6
	Total	**52**	**100.0**
Nurses listen to patients carefully	Strongly disagree	0	0.0
	Disagree	2	3.8
	Neutral	8	15.4
	Agree	28	53.8
	Strongly agree	14	26.9
	Total	**52**	**100.0**
Nurses explain things to the patients in an understandable way	Strongly disagree	0	0.0
	Disagree	2	3.8
	Neutral	7	13.5
	Agree	23	44.2
	Strongly agree	20	38.5
	Total	**52**	**100.0**
Nurses assist patients' in personal care	Strongly disagree	2	3.8
	Disagree	4	7.7
	Neutral	12	23.1
	Agree	30	57.7
	Strongly agree	4	7.7
	Total	**52**	**100.0**

Among the patients who perceived satisfaction highest7 (16.7%) belonged to each of the age groups 18–25 years and 60–65 years. And seventeen (40.5%) of the patients had completed 6–10 years of schooling, 19 (45.2%) of the patients were employed in public services and 21 (50.0%) had monthly income of Tk. 15,000–30,000as shown in Table III. On the other hand who perceived unsatisfaction highest3 (33.3%) belonged to the age groups 30–35 years, 5 (55.6%) of the patients had completed 11–15 years of schooling,7 (77.8%) of the patients were employed in public services and 4 (44.4%) had monthly income of Tk. 15,000–30,000,as shown in Table III.

Table III: Distribution of Satisfaction status with independent variables of patients (n-52)

Variables	Subcategory of variable	Satisfaction status based on mutual respect and courtesy					
		Satisfactory		Unsatisfactory		'Not sure'	
		Number	%	Number	%	Number	%
Age in year	18–25	7	16.7	0	0.0	0	0.0
	25–30	2	4.8	2	22.2	1	100.0
	30–35	4	9.5	3	33.3	0	0.0
	35–40	5	11.9	2	22.2	0	0.0
	40–45	5	11.9	1	11.1	0	0.0
	45–50	3	7.1	0	0.0	0	0.0
	50–55	5	11.9	0	0.0	0	0.0
	55–60	4	9.5	0	0.0	0	0.0
	60–65	7	16.7	1	11.1	0	0.0
	Total	**42**	**100.0**	**9**	**100.0**	**1**	**100.0**
Completed years of schooling	**Illiterate**	8	19.0	0	0.0	0	0.0
	1–5	2	4.8	0	0.0	0	0.0
	6–10	17	40.5	3	33.3	0	0.0
	11–15	15	35.7	5	55.6	1	100.0
	16+	0	0.0	1	11.1	0	0.0
	Total	**42**	**100.0**	**9**	**100.0**	**1**	**100.0**
Occupation	Dependent/Unemployed/Student	4	9.5	0	0.0	0	0.0
	Public service	19	45.2	7	77.8	0	0.0
	Private service	0	00	0	0.0	0	0.0
	Business	0	00	0	0.0	1	100.0
	Homemaking	11	26.2	2	22.2	0	0.0
	Retired	6	14.3	0	0.0	0	0.0
	'Others'	2	4.8	0	0.0	0	0.0
	Total	**42**	**100.0**	**9**	**100.0**	**1**	**100.0**
Monthly income (Taka)	<15,000	19	45.2	3	33.3	1	100.0
	15,000–30,000	21	50.0	4	44.4	0	0.0
	>30,000	2	4.8	2	22.2	0	0.0
	Total	**42**	**100.0**	**9**	**100.0**	**1**	**100.0**

The perception of patients regarding nurses' involvement in their care process, it was seen that in response to whether 'nurses' listen to patients carefully', majority 28 (53.8%) patients agreed that they listen to what patients have to say, while 14 (26.9%) strongly agreed. In response to whether 'nurses' explain things to patients in an understandable way', highest 23 (44.2%) patients agreed that they did explain, while 20 (38.5%) of them strongly agreed.

In Likert scale, the mean score of each of the Likert items for 'nurses listen to patients carefully', 'nurses explain things to the patients in an understandable way', and 'nurses assist patients in personal care' are 4.0, 4.2, and 3.6 respectively as shown in Table IV.

Table IV: Likert score of nurses' involvement in patient care as perceived by patients*

Item	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		Mean score of item
	Number	Score	Number	Score	Number	Score	Number	Score	Number	Score	
Nurses listen to patients carefully (n-52)	0	0	2	4	8	24	28	112	14	70	4.0
Nurses explain things to the patients in an understandable way (n-52)	0	0	2	4	7	21	23	92	20	100	4.2
Nurses assist patients in personal care (n-52)	2	2	4	8	12	36	30	120	4	20	3.6

*For each number (frequency) of each item, the score from strongly disagree to strongly agree is 1 through 5.

DISCUSSION

This study was conducted using purposive sampling technique, which may give an indication of the patients' satisfaction with nursing services at CMH Dhaka. As the findings of this study, were not representing the extensive participation; the resulting understanding may help better management as well as improve the nursing services in the hospital.

The population age distribution in Bangladesh shows that about 84.0% of population are below the age of 50 years.[3] In this study, highest 8 (15.4%) of the patients belonged to each of both age groups of 35–40 and 60–65 years. This distribution does not represent the national findings, because the personnel entitled to receive the treatment from CMH Dhaka were only included in this study. The personnel recruited in the Armed Force are done by strict health screening so, the number of personnel requiring treatment is less among those below 35 years. Another group requires hospital admission is those above 60 years retired from active services and is suffering from chronic illness and/orage related problem(s). The under 21 year's wards of the Armed Forces personnel entitled for care at CMH probably require less hospitalization. In this study, male accounted for 36 (69.2%) of the patients, while the rest were females. Though in Bangladesh male--female population ratio is almost equal,[4] this study demonstrated a male predominance. Due to the

recruitment system of Bangladesh Armed Forces, most of the recruited personnel are male. In contrast, female patients are less in number probably for inclusion of a few female wards and female Armed Forces personnel.

The distribution of marital status of population in Bangladesh shows that 48.7% are married (living with spouse), 47.3% are unmarried, and 4.2% are widow/widower/separated/divorced/deserted.[5] Whereas in our study, 46 (88.5%) were married living with spouse. These study findings on marital status differ from the national figures. Perhaps this difference is due to the fact that, most of the Armed Forces personnel are married and living with spouse, and any form of marital disruption is discouraged in the services. But this is not strictly practiced in society outside Armed Forces in the country. Moreover, patients under the age of 18 years were excluded in this study. This study revealed that about 8 (15.4%) patients were illiterate, and by default the rest 44 (84.6%) were literate. On the other hand, national figure shows 73.9% literacy rate in Bangladesh.[6] The higher literacy rate seen in this study was probably because of the minimum qualification required for recruitment in Armed Forces is 10 years of completed schooling.

Among the whole population of Bangladesh 48.0% are farmer, 37.0% are service holders (in both public and private) and 15.0% are working as day labors in industries.[7] In this study, highest 26 (50.0%) of the patients were employed in public services, and about 13 (25.0%) were homemakers. This distribution is different from the national findings as most of the population under study is working in the public sector, that is, Armed Forces. The ward entitled for treatment at CMH may be mostly homemakers and students/dependents. Average per capita monthly income of a citizen of Bangladesh is around Taka 13,258.[8] The calculation of national average includes the considerable number of unemployed ones too. Majority of population in this study were employed in the Armed Forces for which majority of the patients had income of Taka 15,000–30,000, which is higher than the national average. Armed Forces personnel accounted for 32 (61.5%) and wards accounted for 20 (38.5%) of the patients. All Armed Forces personnel, their spouse and children, and parents are entitled for receiving treatment at CMH. As the study included subjects above18 years, child wards below 18 years were excluded. Inclusion of under 18 years wards could have influenced the categories of patients.

The study revealed that 42 (80.8%) patients perceived satisfaction and 9 (17.3%) patients' perceived un satisfaction in mutual respect and courtesy with nurses during dispatching care services. Finding of this study shows (showed) that 1 (1.9%) patient was undecided over mutual respect and courtesy with nurses. A study conducted in a non-military hospital in Bangladesh found that about 85.0% perceived satisfaction in mutual respect and courtesy with nurses.[9] The satisfaction level of patients with nursing services regarding mutual respect and courtesy in military and non-military hospitals appeared near similar. The subtle difference on the issue observed with the other study is most likely due to the selection of study population. Satisfaction is a subjective perception. Though the satisfaction level among patients in this study was quite high, but there remains some difference with total satisfaction. Moreover, this is only one side of the picture, the satisfaction of nurses in caring for the patients also need to be understood for sustained satisfaction at a high level on the part of both parties. Study in a tertiary level non-military hospital in Bangladesh found that 86.0% patients perceived nurses attend call immediately.[9] This is not exactly reflected in the findings of this study. This study revealed that 37 (71.2%) patients perceived nurses attend call immediately. This low level of perception among patients might be due to inadequate motivation of nurses at CMH Dhaka.

A study in Bangladesh found that, 41.8%, 89.0% and 81.8% patients perceived that nurses' listen to patients carefully, explain things to patients in an understandable way, and assist in patients' personal care respectively.[9] In this study, majority 28 (53.8%) agreed that nurses listen to what patients have to say, while 14 (26.9%) strongly agreed. Twenty three (44.2%) respondents agreed that nurses explained different care issues

in an understandable way, while 20 (38.5%) strongly agreed. Again, in response to whether nurses' assist in patients' personal care, 30 (57.7%) agreed that they did, while 12 (23.1%) were neutral in their opinion. In this study in the dynamics of agreement, the scale on the positive side after neutral is divided into two scales. The other study considered only one scale on the positive side of neutral. The cumulative consideration of the findings on the positive side in this study for each item appears near similar to the other study.[9] Satisfaction about nursing services as perceived by patients in a military and a non-military hospital is nearly similar.[10]

Moreover, this is one side of the story, the other side being the perception of nurses in enhancing their performance and contribution to healthcare of patients. Further studies to help in integrated improvement of nursing services and perception of patients is indicated.

CONCLUSION

Nursing services is an exigent phenomenon that needs to be emphasized for quality healthcare delivery in CMH Dhaka. Though the patients` perceptions to nursing services were agreeable, but there remains ample scope for further improvement through training of nurses. For sustained satisfaction of patients at a high level, studies to understand the perception and satisfaction of nurses in their profession are indicated too.

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ORIGINAL ARTICLE

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Presentation and Management Outcome of Acute Appendicitis Among the Elderly Patients: A Hospital based Study

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ABSTRACT

Introduction: *Acute appendicitis is the most common surgical acute abdominal condition. Now a days, the atypical presentation and poor outcome of acute appendicitis in elderly patients is a challenge for surgeons. The aim of the study is to evaluate the presentation and management outcome of acute appendicitis among the elderly patients to reduce the morbidity and mortality.* ***Methods:*** *This cross-sectional descriptive study was carried out in different general surgical wards at Rangpur Medical College Hospital from April, 2011 to January, 2012. As per selection criteria, amongst 720 cases, total 50 diagnosed elderly appendicitis patients were enrolled for this study. They were divided into two groups on the basis of post-operative findings into complicated (23, 46%) and uncomplicated (27, 54%). A preformed questionnaire was used for data collection. Further information was obtained by clinical examination and from the patient`s admission register.* ***Results:*** *Out of 50 patients (above 50 years), male: female was 1.2:1 and majority of them had uncomplicated appendicitis 21 (77.77%). Regarding symptoms, pain was present in all (n-50) patients but typical migratory pain complained by 28 (56%) patients. In complicated group, majority of the patients presented with various symptoms like fever (18, 78.26%), anorexia (14, 60.86%), nausea (10, 43.47%) and vomiting (10, 43.47%). Whereas, in uncomplicated group, major symptoms like fever (17, 62.96%), anorexia (16, 60.86%), vomiting (15 ,55.55%) and nausea (12, 44.44%). Abdominal tenderness was present in almost all patients. In complicated group, atypical tenderness was felt in majority of patients (18, 78.26%) but in uncomplicated group, the majority of patients (21, 77.78%) presented typical tenderness. Rebound tenderness was the major sign in both uncomplicated group (19, 70.37%) and in complicated group (13, 56.52%). Leucocytosis was found in 19 (82.60%) patients of complicated group and in 17 (62.96%) patients of uncomplicated group. In uncomplicated group, the mortality was nil but one death occurred in complicated group.* ***Conclusion:*** *Acute appendicitis in the elderly patient continues to be a challenge for practising surgeon. A careful history taking, examination of elderly patient and avoidance of delayed diagnosis are important for prevention of morbidity and mortality. Late presentation, delayed diagnosis, presence of perforation and co-morbidities were associated with the poor outcome of surgery.*

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INTRODUCTION

Acute appendicitis is a common emergency condition in daily surgical practice. In elderly patients it is more serious which needs early diagnosis and treatment. The lifetime risk for an individual of developing appendicitis is 8.6% and 6.7% in male and female respectively.[1] In the developing countries, the incidence of acute appendicitis is rising but it is declining in the western countries. For which the rate of appendicectomy has remained constant to 10 per 1000 population per year.[2] Acute appendicitis is rare in infants and becomes common in childhood and early adult life, reaching a peak incidence in the early twenties. The incidence of appendicitis is equal among male and female before puberty. In teenagers and young adults, the male-female ratio increases to 3:2 at age 25; thereafter, the greater incidence in male declines.[3] The number of elderly population is rising all over the world as the life expectancy is increasing. Total number of elderly (≥55 years) in Bangladesh was 5.41 million in 1974 and 9.95 million in 2001.[4,5] Although modern diagnostic tools like CT scan, ultrasonography and laparoscopy has been shown to reduce the rate of negative appendicectomies.[6-8]

The timely surgical intervention can reduce both mortality and morbidity. Studies[9,10] have shown that the incidence of perforated appendix and the complication following perforation in the elderly patients may be decreased if surgery is expedited when there is leukocytosis. In young adult, acute appendicitis usually diagnosed clinically but in elderly patients, it is difficult due to high rate of atypical presentation. The risk of perforation in the elderly population is high (up to 70%).[11] In 1944, the mortality of acute appendicitis was 2.4%, today this figure is less than 1% in the general population.[12] Despite such progress, morbidity and mortality in elderly remains significant at 28-60% and 10% respectively.[13,14] This study was aimed to evaluate the presentation and management outcome of acute appendicitis among the elderly patients in the northern region of Bangladesh.

METHODS

This cross-sectional descriptive study was carried out in different surgical wards of Rangpur Medical College Hospital, Rangpur, Bangladesh during April, 2011 to January, 2012. Among total 720 cases, 50 were elderly appendicitis patients enrolled for this study according to selection criteria. Inclusion criteria were: clinically diagnosed acute appendicitis, Age ≥50 years and per operatively diagnosed as acute appendicitis. Exclusion criteria were negative appendicitis on histopathology and patients diagnosed with appendicular lump. Preoperative diagnosis was made from history, physical examination, relevant investigations that included CBC, Urine R/M/E, Plain X-ray KUB and USG. After appendicectomy, resected appendix was sent for histopathological examination to the department of pathology. In this study, complicated appendicitis was defined as perforated appendicitis with or without abscess formation. Informed written consent was obtained from the patients. Hospital authorities were informed about the study and permission was obtained. Detailed information was obtained in each cases according to protocol. Collected data was classified, edited, coded and entered into the computer for statistical analysis by using MS EXCEL. Chi square test was used for statistical analysis and *p*-value <0.05 was considered as statistically significant.

RESULTS

During the study period, total 720 appendicectomies were performed in three general surgical wards of Rangpur Medical College Hospital. Out of them 50 patients were found to be ≥50 years of age with an occurrence rate of 6.9%. Out of 50, 28 (56%) patients were male, with a male: female ratio 1.2:1 (Figure 1). Among these elderly patients, most of them (33, 66%) were between 50-59 years age group. On the basis of the operative findings, the study subjects were divided into complicated (23, 46%) and uncomplicated group (27, 54%). Complicated appendicitis was found frequently with increasing age (Table I, Figure 2).

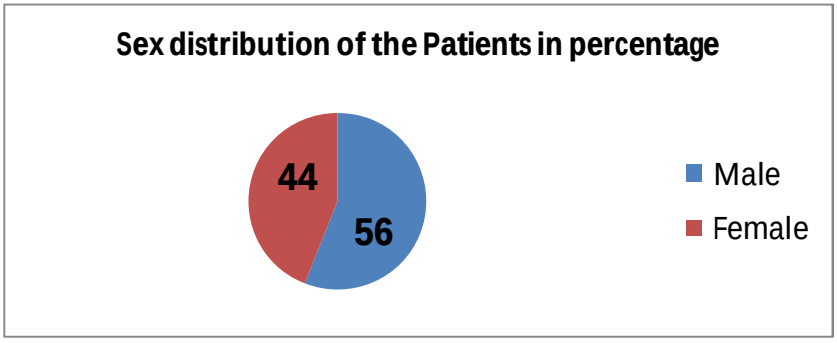

Figure 1: Sex distribution of patients

Table I: Distribution of appendicitis patients by different age groups (n-50)

Age groups (in years)	Complicated Appendicitis	Uncomplicated appendicitis	% of Complicated Appendicitis
50-59 Year (n-33)	12	21	36.66%
60-69 Year (n-11)	6	5	54.54%
70-79 Year (n-5)	4	1	80%
>80 Year (n-1)	1	0	100%
Total	**23 (46%)**	**27 (54%)**	

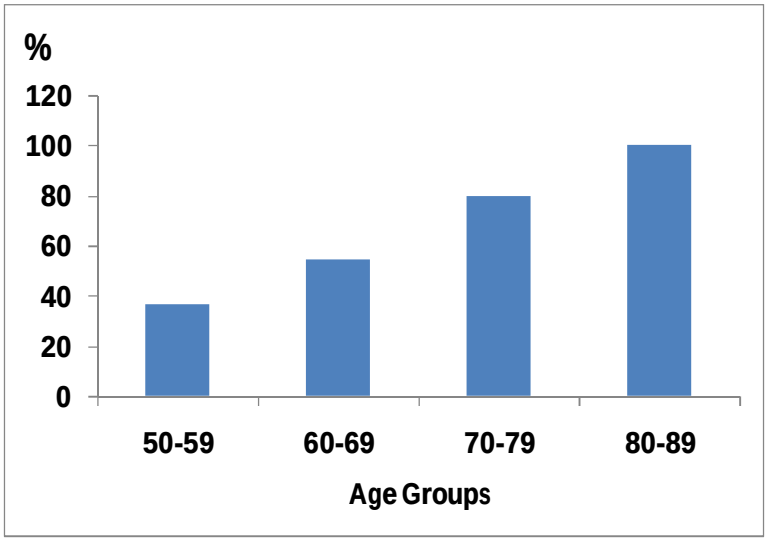

Figure 2: Distribution of complicated appendicitis in various age groups

Table II: Distribution of co-morbidities among complicated and uncomplicated groups

Co-morbidities	Complicated (n-23)	Uncomplicated (n-27)
Hypertension (n-11)	9 (39.1%)	2 (7.4%)
Cardiac disease (n-08)	6 (26.08)	2 (7.4)
Diabetes mellitus (n- 06)	5 (21.73%)	1 (3.7%)
COPD (n-03)	2 (8.69%)	1 (3.7%)
Malignancy (n-01)	1 (4.35%)	0

Pain was the dominant presenting symptom and was present in all cases (n-50), only 28 (56%) patients felt the typical migratory pain (peri-umbilical pain shifted to the right iliac fossa) of which 21 (77.77%) patients were belongs to uncomplicated group. Rest 22 (44%) patients, experienced atypical pain (diffuse abdominal pain). Among them 16 (69.56%) patients were in complicated group (Table III).

Table III: Distribution of presentation of pain

Type of Appendicitis	Nature of pain	
	Typical (n-28)	Atypical (n-22)
Complicated (n-23)	7 (30.43%)	16 (69.56%)
Uncomplicated (n-27)	21 (77.77%	6 (22.22%)

In both complicated and uncomplicated group, most common presenting symptoms were fever (35, 70%) and anorexia (30, 60%). (Table IV).

Table IV: Presenting symptoms patients (n-50)

Symptoms	Complicated Group (n-23)		Uncomplicated Group (n-27)	
	Present	Absent	Present	Absent
Fever (n-35)	18 (78.26%)	5 (21.73%)	17(62.96%)	10(37.03%)
Anorexia (n-30)	14 (60.86%)	9 (39.13%)	16(59.25%)	11(40.74%)
Nausea (n-22)	10 (43.47%)	13(56.52%)	12(44.44%)	15(55.55%)
Vomiting (n-25)	10 (43.47%)	13(56.52%)	15(55.55%)	12(44.44%)

Out of 27 patients in the uncomplicated group, 25 (92.59%) patients had typical tenderness and out of 23 complicated group, 18 (78.26) patients had atypical tenderness (Table V).

Table V: Frequency of abdominal tenderness among complicated and uncomplicated groups (n-50)

Appendicitis (n-50)	Tenderness	
	Typical (n-30)	**Atypical (n-20)**
Complicated (n-23)	5 (21.74%)	18 (78.26%)
Uncomplicated (n-27)	25 (92.59%)	2 (7.40%)

Rebound tenderness was present in 19 (70.37%) uncomplicated patients and 13 (56.52%) in complicated group (Table VI).

Table VI: Comparison of rebound tenderness among complicated and uncomplicated groups

Appendicitis (n-50)	Rebound Tenderness	
	Present (n-32)	**Absent (n-18)**
Complicated (n-23)	13 (56.52%)	10 (43.47%)
Uncomplicated (n-27)	19 (70.37%)	8 (29.62%)

Among 50 patients, Leukocytosis was present in 19 (82.60%) patients among complicated group and in 17 (62.96%) patients of uncomplicated group (Table VII).

Table VII: Comparison of leukocytosis among complicated and uncomplicated groups

Appendicitis	Leukocytosis	
	Present (n-36)	Absent (n-14)
Complicated (n-23)	19 (82.60%)	4 (17.39%)
Uncomplicated (n-27)	17 (62.96%)	10 (37.03%)

Out of 50 patients, 30 (60%) patients were clinically diagnosed as acute appendicitis and 20 (40%) patients diagnosed as acute abdomen.

In this study, Gridiron was the most common (23, 85.18%) incision among uncomplicated appendicitis. Whereas, right lower paramedian/ midline incision was common (16, 69.5%) in complicated appendicitis. On average, Post-operative hospital stay for complicated group and uncomplicated group were 14.67 days and 6.10 days respectively.

In case of uncomplicated group, a post-operative complication was found only in 4 (14.81%) patients but in case of complicated group it was present in 16 (69.56%) patients (Table VIII). The *p*-value is 0.000082, which is statistically significant at $p<0.05$.

Table VIII: Post-operative complications among the study subjects

Appendicitis (n-50)	Post-operative complications		*p*-value
	Present (n-20)	Absent (n-30)	
Complicated (n-23)	16 (69.56%)	7 (30.43%)	*p*-0.000082
Uncomplicated (n-27)	4 (14.81%)	23 (85.18%)	

The only one death occurred in the complicated group of patients with an occurrence rate of 4.34%

DISCUSSION

Although acute appendicitis is rare in elderly, with an incidence rate of 5-10%, it is becoming more common as the rising number of elderly people due to rising life expectancy.[8]

In this study, the occurrence rate of appendicitis in elderly was 6.9%. In 2003, Gurleyik et al.[15] had found an incidence rate of 4.3% in their study. Addiss et al.[3] had shown a male: female ratio of acute appendicitis was 1.4:1. In this study, male: female ratio was 1.2:1. Luckmann[16] showed incidence of complicated appendicitis was more in elderly patients, which is consistent with our findings. For the elderly, diagnosis of acute appendicitis is much more difficult due to atypical presentation, associated co-morbidities, as well as delayed diagnosis.

The most common presentation of acute appendicitis in both older and younger patients were abdominal pain, fever, anorexia, nausea, vomiting and leukocytosis. Unlike the presentation in younger patients, it is rare for all features to be present in older patients. Lee et al.[9] found in their study population of 130, only 43 (33.1%) were febrile, 34 (26.1%) had a history of vomiting and 6 (12.3%) had diarrhea**.** All patients presented with abdominal pain but the classical site of pain in the right lower quadrant was present only in 90 (69%) patients. Sheu et al.[10] observed more classic signs and symptoms in non-perforated appendicitis among elderly patients. But in perforated appendicitis there was higher percentage of fever and anorexia.

In this study, abdominal pain was the most common symptom and presented in all 50 cases. Typical pain of acute appendicitis was in 28 (56%) patients, rest 22 (44%) complained of pain in other parts of the abdomen along with the right lower abdomen and was grouped together as atypical pain. Typical pain was felt by most of the uncomplicated patients. Among the other

symptoms, fever was present in 35 (70%) patients, anorexia in 30 (60%) patients, nausea in 22 (44%) patients and vomiting in 25 (50%) patients.

The diagnosis of appendicitis rests more on thorough clinical examination of the abdomen than on any aspect of the history or laboratory investigation. Among the signs, abdominal tenderness was found in all patients but the right lower quadrant tenderness is typical 30 (60%) for acute appendicitis, out of which 21 (77.78%) were uncomplicated. Most of the complicated appendicitis presented with atypical tenderness 18 (78.26%). Rebound tenderness, another important sign, was present in 32 (64%) patients. 36 (72%) had leukocytosis. Out of 23 complicated patients 19 (82.60%) had leukocytosis. On the other hand, 17 (62.96%) out of 27 uncomplicated patients had leukocytosis.

Diagnosis may be delayed by atypical presenting signs and symptoms, so acute appendicitis does not immediately come to mind when evaluating abdominal pain in elderly.[8] Longer duration of pain was one of the risk factors for perforated appendicitis.

Hui et al.[6] mentioned that associated illness occurred in 71 (75%) patients. In this study, the co-morbidities found among the study subjects were hypertension, cardiac disease, diabetes mellitus, chronic lung disease and malignancy. But those co-morbid diseases obscured the diagnostic features in elderly patients. An accurate clinical diagnosis of acute appendicitis were made among 54% and 69.8% of patients respectively by several researchers.[17,18]

In this study, out of 50 patients, 30 (60%) had the preoperative clinical diagnosis. Rest was diagnosed as acute abdomen. Though there is advancement in the field of imaging study but unfortunately, scholars failed to give accurate and effective opinion regarding the diagnosis of acute appendicitis.[6,9,19-21]

In addition to delay in presentation and difficulties with diagnosis, there is a natural tendency for the appendix to be more prone to rupture with age. Lee et al.[9] have shown, the blood supply to the appendix is affected by atherosclerosis that predisposes the appendix to perforate.

Luckmann[16] has shown the perforation rate in younger ranges from 17-20%. But in elderly it increases with age. In this study, Out of 50 elderly study subjects, 23 (46%) had complications. Among them 17 (73.9%) had perforated appendicitis, 2 (8.6%) had abscess and 4 (17.39%) had gangrenous appendicitis.

Lee et al.[9] and Gurleyik et al.[15] discussed older patients are more likely to receive midline or paramedian incisions which need more hospital stays. In this study, 20 (40%) received either a right lower paramedian or a midline incision. Midline or paramedian incisions are preferable as the cases are more complicated and there are chances of diagnostic dilemma.

Most of the studies[10,15] showed that there is a high post-operative complications and morbidity among the elderly which resulted in longer duration of hospital stay as well as increased treatment cost. In this study, post-operative complications were present in 20 (40%) of patients. Among them, ten had minor wound infection, five had major wound infections with wound dehiscence, three had intra-abdominal abscess, one had faecal fistula and one had septicemia. Contrary to this, 23 (85.19%) patients in the uncomplicated group did not have post-operative complications. Another interesting observation of this study was, majority of the post-operative complications was related to patients who received right lower para-median incision. For 23 complicated patients post-operative hospital stay was 14.67 days which was prolong than uncomplicated group.

The mortality rate among the elderly with acute appendicitis is much higher than the younger age group as supported by most of the studies.[15] In this study, the overall mortality rate was 2%, 4.34% mortality among the complicated group and 0% in uncomplicated group. Besides atypical presentations, lax abdomen and obesity coupled with comorbidities produces higher mortality for acute appendicitis in elderly.

CONCLUSION

This study observed that the incidence of acute appendicitis falls with increasing age in elderly patients but complications rise. Typical presentations were more common with uncomplicated appendicitis whereas most of the complicated patients presented atypically. This study concluded with the message that a high index of suspicion and emergency surgery are the

keys to minimizing morbidity and mortality. Early diagnosis of these disease and proper treatment at early stages can save life of many patients.

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CASE REPORT

NORTH BENGAL MEDICAL COLLEGE JOURNAL [2022], VOL., 8, No. 1 : 32-37

A Rare Combination of Systemic Onset Juvenile Idiopathic Arthritis (SOJIA) with Ventricular Septal Defect (VSD): A Case Report

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ABSTRACT

Juvenile idiopathic arthritis (JIA) is an umbrella term for a family of heterogeneous childhood arthritis of unknown cause. It is defined by the presence of inflammatory arthritis with a duration of ≥6 weeks in children <16 years of age. Systemic-onset JIA (SOJIA) is a distinct subset of JIA, characterized by the presence of systemic inflammation as extra-articular features. This case of SOJIA who presented with recurrent bouts of fever and deforming arthritis along with ventricular septal defect, a rare association of SOJIA.

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INTRODUCTION

Juvenile idiopathic arthritis (JIA)is a common chronic childhood disease and the most common childhood rheumatic disease.[1] The incidence and prevalence vary widely, with lower rates in Asian populations and higher among those of European background(Incidence ranges from <1per 100,000 children in Japan to 23 per 100,000 in Norway).[2] Various terms were in practice to classify children with persistent arthritis, until the integrated term "juvenile idiopathic arthritis " was first introduced by the International League of Associations for Rheumatology (ILAR), to describe the heterogeneous group of disorders of unknown etiology characterized by arthritis lasting ≥6weeks in children <16 years of age. The ILAR classification was formed by expert consensus in 1995, with revisions in 1997 and 2001.[3]

Systemic-onset JIA (SOJIA), formerly known as Still's disease, accounts for 10% to 20% of all JIAs. It has unique characteristics that include fever, specific rash, lymphadenopathy, organomegaly, serositis and significantly elevated inflammatory markers in addition to arthritis.[1]It may begin in young children during the first or second year of life, although cases are distributed throughout childhood. The fever of SOJIA is usually quotidian or double-quotidian, which means temperature returns to base line on a daily basis. The temperature swings can often become dramatic, may behave like remittent fever with changes up to 4^0C within four hours.[4,5] The rash can assume any pattern, often urticarial, macular and salmon pink in colour, can occur on any part of the trunk or extremities, typically spares the face. Sometimes it appears during temperature peak, with a predilection for axilla and waist.[1,4] ILAR defines SOJIA as, "arthritis in one or more joints with or preceded by fever of at least 2 weeks duration that is documented to be daily ("quotidian") for at least 3 days and accompanied by one or more of the following: 1. evanescent (nonfixed) erythematous rash 2. generalized lymph node enlargement 3. hepatomegaly and/or splenomegaly 4. Serositis (pleural/ pericardial involvement/ abdominal pain). Exclusions: psoriasis/or history of psoriasis,

arthritis in an HLA-B27 positive male, ankylosing spondylitis, enteritis related arthritis and other arthritis and extra-articular features related to spondyloarthritis, the presence of IgM rheumatoid factor on at least two occasions at least 3 months apart.[3] Other systemic features include headaches, and sore throat. Pericarditis and pericardial effusions are the most common organ system manifestations, occurring in 30-40% of patients. Myocarditis is a rare complication that can cause arrhythmias and heart failure.[4]

Recent research has identified biologic differences of SOJIA from other JIA subcategories, including prominent involvement of components of the innate immune system (in particular, inflammatory cytokines IL-1, IL-6, and IL-18, neutrophils and monocytes/macrophages), suggesting that SOJIA is closer to the auto-inflammatory pole of the disease spectrum compared with the autoimmune pole.[6, 7]

There are no diagnostic tests for SOJIA. Actually it is a diagnosis of exclusion, although there are characteristic patterns of laboratory abnormalities, including high inflammatory markers (e.g., elevated serum ferritin in 70% cases), significant leukocytosis with neutrophilia, thrombocytosis and anemia. Liver transaminases and coagulation screen may be abnormal in severe cases.[4]

Treatment of SOJIA depends on the extent of organ involvement (especially arthritis) and the severity of systemic inflammation. American College of Rheumatology (ACR), recommends treatment of SOJIA after categorizing it into two sub-groups: 1. systemic arthritis with active systemic features (and without active arthritis) and 2. systemic arthritis with active arthritis (and without active systemic features).[8] In general, treatment of SOJIA begins with nonsteroidal anti-inflammatory drugs (NSAIDs), which alone maybe effective for many children. Second line agents, such as glucocorticoids or methotrexate, are used if NSAIDs are ineffective. Biologic agents, such as monoclonal antibodies to interleukin-1 (IL-1) or IL-6, appear effective in reducing clinical symptoms in patients with disease refractory to conventional therapy.[4]

This presenting case is a unique one, as I didn't find any case report of SOJIA with congenital heart disease, during our extensive and diligent MEDLINE/Pub search. The peculiar combination of SOJIA with VSD may thus be considered as first ever case report in Bangladesh nevertheless, if not on a subcontinent or global basis.

The Case

Master Ovi, a 12-year-old boy with short stature and micrognathia from a non-consanguineous parent, got admitted into the department of medicine, Shaheed M Monsur Ali Medical College Hospital (SMMAMC&H), Sirajganj, Bangladesh on October, 2021 with the complaints of high fever, prostration and pain, swelling and deformity of few large joints (bilateral wrists, knees, left elbow) and pain in right groin with limping. He has had a history of fever, pain and swelling of the mentioned joints, which first appeared eight years back (Figure 1)

Figure 1: The case (boy) with apparent knee (bilateral) and elbow (left) deformity

That initial episode ended with subsidence of fever but persistence of joint symptoms at a lower intensity. Since then he experienced multiple episodes of fever and aggravation of joint symptoms and gradual development of deformity. He didn't give any history of inflammatory back or neck pain, neither any history of red itchy eye, blurred vision, bloody diarrhoea, scaly skin rash or inflammation of small hand-feet joints. He was treated with different NSAIDs and corticosteroids, of and on for all these years and methotrexate for few months initially.

His general examination revealed, stunted growth (height 132 cm), raised temperature (103^0F), micrognathia, severe anemia, bilateral cervical lymphadenopathy, leg oedema and engorged neck vein. Examination of abdomen revealed hepato-splenomegaly. Cardiovascular system examination revealed displaced apex and a pansystolic murmur. Auscultation of lung revealed bilateral basal crepitation. In locomotor system examination he showed grade: IV tenderness of knees and wrists, grade: II of left elbow with movement restriction of all those joints. Hip joint examination was normal on the left side but restricted flexion, abduction and external rotation with grade: III tenderness on the right side. Gait was antalgic with less time spent on the right-side during walking.

Investigation revealed: haemoglobin: 7.3 gm/dl, total count leukocyte: 14,000/mm^3, Neutrophil: 81%, ESR: 120 mm in 1st hour, peripheral blood film (PBF): normocytic normochromic anaemia, serum ferritin: 1500 ng/ml (marked raised), anti-nuclear antibody (ANA): negative, anti-cyclic citrullinated peptide(anti-CCP): negative, X-Ray chest postero-anterior view: shows cardiomegaly (right ventricular type) with fullness of pulmonary conus (Figure 2), X-Ray pelvis with both hip joints AP view: shows deformity of femoral head with narrowing of joint space (Figure 3), ultrasonography of whole abdomen: hepato-splenomegaly, echocardiography: sub-aortic ventricular septal defect (VSD) with moderate pulmonary hypertension (Figure 4).

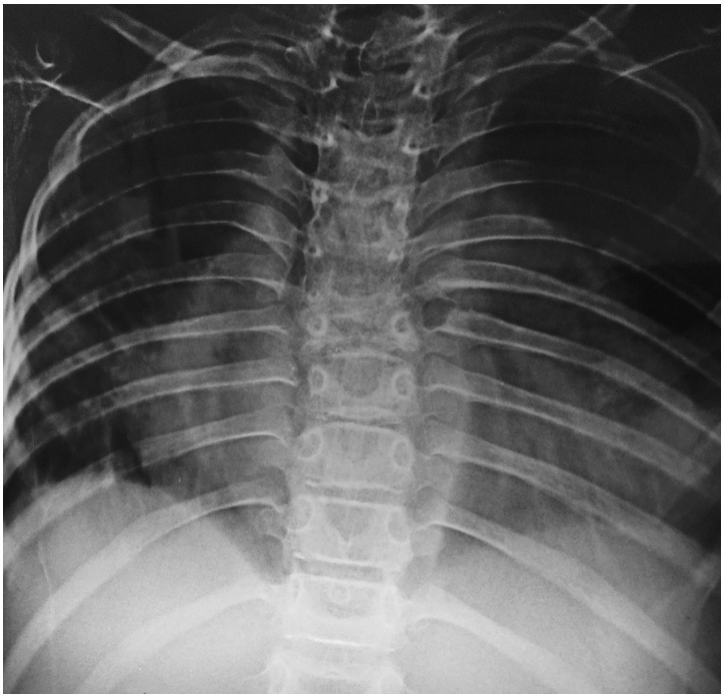

Figure2: X Ray chest PA view showing cardiomegaly (right ventricular type)

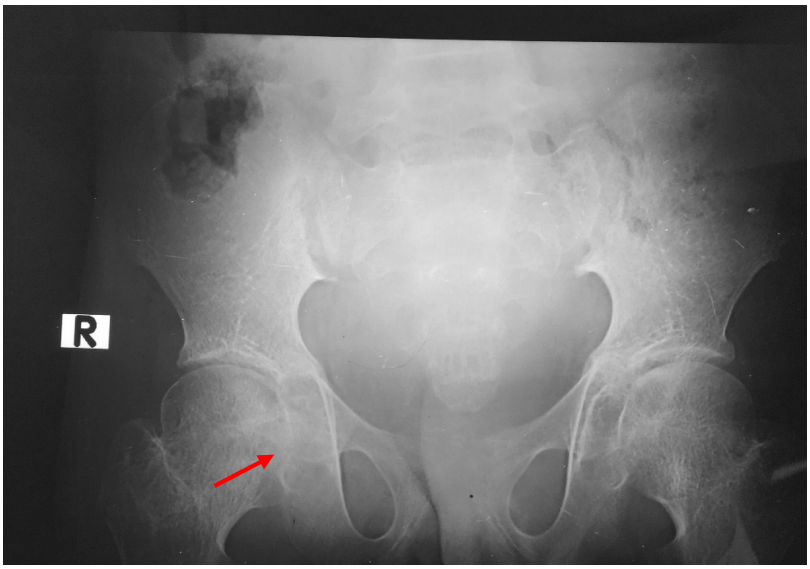

Figure3: X-Ray pelvis with both hip joints AP view showing deformity of femoral head (right) with narrowing of lower and medial joint space (Arrow).

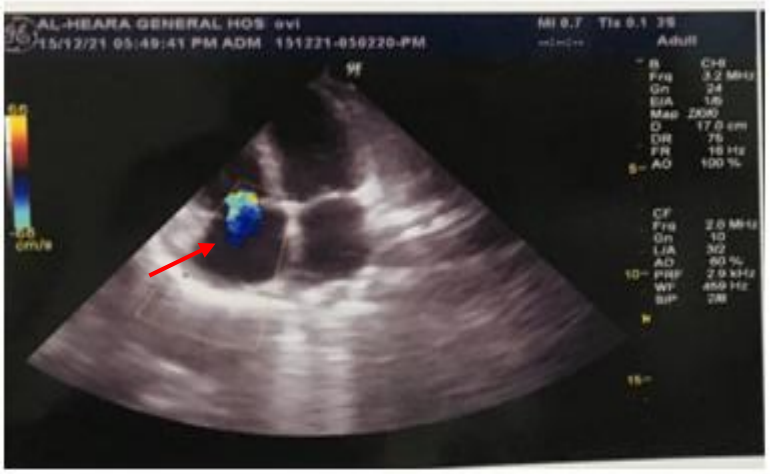

Figure 4: Doppler echocardiography showing subaortic VSD (Arrow)

During stay at our hospital, he was prescribed naproxen (250 mg, twice daily), tramadol (25 mg, twice daily), prednisolone (20 mg/day), methotrexate (MTX,10mg/week), calcium (1 gm/day) and vitamin D(400 IU/day) and frusemide (20 mg twice daily). Intra-articular steroid (triamcinolone acetonide 20mg each joint) was given in both knees. After seven days his joint symptoms improved significantly and fever subsided completely. He was discharged after 15 days with advice to continue MTX indefinitely, naproxen for 2 weeks and prednisolone, in a tapered schedule to discontinue in 6 weeks. He was on regular physiotherapy (as per our advice), on regular follow-up, in our weekly rheumatology out-patient department (OPD) SMMAMC&H and continuing his health reasonably well.

DISCUSSION

Systemic-onset JIA (SOJIA), a relatively common form of JIA, differs from other JIAs, in respect to its systemic involvement, absence of serologic markers, and relatively early age of onset and gender neutrality. Unlike the pauciarticular and

polyarticular subtypes of JIA, the arthritis of SOJIA may begin in the hips and progress very rapidly, causing severe damage and dysfunction as well as loss of growth prospective in younger patients. Micrognathia and cervical spine fusion are commonly present in children with chronic SOJIA.[4] According to the classification criteria proposed by the International League of Associations for Rheumatology (ILAR), clinical presentation of this case qualifies him as a case of SOJIA.[3]Regardless of having most of the typical clinical feature of SOJIA since his early childhood, the diagnosis was not confirmed before his admission in our hospital, and neither did he get standard treatment. We labeled him as a case of"chronic SOJIA", based on growth retardation and deforming arthritis of right hip and other large joints of upper and lower extremities and micrognathia, although his cervical spine was spared.

Fever is the most common initial presentation according to many authors.[1,4,9,10] Arthralgia/ arthritis are the second most common presentation.[1,4] Tajkia et al.[9]reported two cases: both had fever as their presenting complaint, one of them had no musculoskeletal complaints, the another had arthralgia at presentation. Hepatomegaly, splenomegaly, rash and lymphadenopathy are other common presentation.[1,4] This case presented with all those typical clinical features of SOJIA (high spiking quotidian fever, deforming arthritis, lymphadenopathy and hepato-splenomegaly) except the rash. Serositis is another characteristic but a less common feature of SOJIA.[1,4,11] The presented case had ascites but no abdominal pain or tenderness. This (ascites) can better be explained by congestive cardiac failure (CCF) consequent upon ventricular septal defect (VSD). This patient had echocardiographic proven VSD with CCF. VSD in association with SOJIA was a unique feature of the presented case. After extensive internet search I found one case of JIA with congenital heart disease.[12] That Iranian boy had echocardiographic evidence of patent ductus arteriosus (PDA); he was diagnosed as a case of JIA with DiGeorge syndrome. Predictors of poor articular outcome in SOJIA include systemic features for 6 months after onset, thrombocytosis, and the presence of polyarthritis with hip involvement and cervical spine fusion.[1,11] This identifies the case as having poor prognosis.

Nonsteroidal anti-inflammatory drugs (NSAIDs) and/or intra-articular steroid (IAS) injections are the first-line treatment for most JIAs including SOJIA.[1] Initially this patient was treated our case with NSAIDs, IAS, systemic steroid (oral prednisolone 20 mg/day) and methotrexate (10mg/week). As the boy had poor prognostic factors, the treatment we offered might not be enough. The newer biologics that inhibit IL-6 (tocilizumab) and IL-1 (anakinra, canakinumab, and rilonacept) and TNF inhibitors would have been better options.[1,11] Clearly, cost (and less availability) of those newer agents prohibited their use in this case.

CONCLUSION

Systemic Onset Juvenile Idiopathic Arthritis (SOJIA) is a disease of exclusion. We were careful to exclude other potential differentials (Kawasaki's disease, lymphoma, leukaemias, Infections) by detailed history taking, meticulous clinical examination and some rational investigations. Delay in diagnosis and sub-optimal management of this boy with poor prognostic factors accounted for his growth retardation, joint deformity and recurring systemic inflammation. Financial constraints prohibited his further management with newer agents. A customized (but somewhat sub-optimal), management plan, which we offered may hopefully alleviate his suffering to some extent.

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Conflicts of interest: None

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