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- To promote and provide education in Medical Science and to Provide training in different discipline of medicine recognized by the postgraduate institutes and universities.
- To conduct research work on the diseases prevalent in the country.
- To conduct research on medical education with the aim of uplifting the quality and standard of medical education in the country.
- To produce and provide skilled manpower in the medical, nursing and paramedical fields.
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Editorial

Diarrhoea in children.

Dr. Chanchal Kumar Mondal

Diarrhoea is one of the most common causes of morbidity and mortality in children all over the world especially in developing countries. The median global incidence of diarrhea was 5 and 2.6 episodes per child per year in infants (6-11months) and for all children between 0-4 years respectively[1]. Identification of the factors that may facilitate or impede the use of appropriate healthcare services may help to identify those who are most vulnerable, and provide information for policy makers to target their services to the community in greatest need. In the developing countries, diarrhea is often inadequately managed at home[2]. Rotavirus is a leading cause of watery diarrhoea in children, estimated to account for 39% of diarrhoea hospitalizations in young children[3].

It was estimated that, in 2010, there were 1·731 billion episodes of diarrhoea (36 million of which progressed to severe episodes) and 120 million episodes of pneumonia (14 million of which progressed to severe episodes) in children younger than 5 years. It was found that, in 2011, 700,000 episodes of diarrhoea and 1·3 million of pneumonia led to death. A high proportion of deaths occur, that is about 72% for diarrhoea in the first 2 years of life/ and 81% for pneumonia[4]. Globally, diarrhoeal disease is the second leading cause of under-five mortality, accounting for 2 million deaths per year. The majority of these deaths can be prevented by the timely use of oral rehydration solution (ORS) and continued feeding (including breastfeeding). However, practices received by less than one-third of children in South Asia and sub-Saharan Africa[5].

In developing countries breast feeding reduces the incidence and severity of diarrhea in infants[6]. Lack of exclusive breastfeeding among infants 0-5 months of age and absence of breastfeeding among children 6-23 months of age are associated with increased morbidity and mortality due to diarrhea in developing countries. Studies show that human milk glycans, which include oligosaccharides in their free and conjugated forms, are part of a natural immunological mechanism that accounts for the way in which human milk protects breastfed infants against diarrheal disease[7].

Primary prevention of diarrhea is achieved through safe water, sanitation and hygienic interventions. It is based on reducing the faecal-oral transmission of pathogens that includes the provision of an improved supply of safe water, household water treatment and safe storage of water along with improved sanitation facilities, and hygiene education[8]. Hygiene education can address a number of practices, including hand washing after toilet use and before the preparation of food etc.[9]. Implementing water, sanitation and hygiene interventions among poor households would show its highest effectiveness during the first 50% coverage[10].

Zinc deficiency, on the other hand, predisposes to frequent diarrheal episodes, increasing their duration and severity, creating a vicious cycle. Zinc deficiency reduces brush border enzymes, disrupts intestinal mucosa and increases mucosal permeability and intestinal secretion, thus making the diarrheal episode more severe and prolonged. Zinc supplementation has been known to cause early regeneration of intestinal mucosa thus improving intestinal permeability, restoration of intestinal brush border enzymatic function, overall causing reduction in intestinal secretion and regulation of water and electrolyte transport. Zinc by maintaining the integrity of the gut mucosa reduces and prevents the fluid losses. These responses begin to occur within 48 hours of starting zinc supplementation[11].

Group A rotaviruses are the major etiologic agents of severe infantile diarrhea. Worldwide, >125 million infants and young children develop rotavirus-associated diarrhea each year, resulting in 440,000 infant and child

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deaths, mostly in developing countries[12] . In Bangladesh, rotaviruses cause 6,000–14,000 deaths each year in children <5 years of age[13]. In April 2009, WHO strongly recommended the introduction of rotavirus vaccines into national immunisation programmes worldwide, but noted a need for ongoing monitoring of vaccine performance on the basis of variable efficacy of the vaccines in different populations[14].

It is important to follow the already established recommendations in the prevention and management of acute diarrhea, which are:

- Exclusive breastfeeding for 1st six months then continued breast feed at least up to 2 years of age along family food.
- Access to safe, clean drinking-water and basic sanitation, washing hands with soap.
- Ensure adequate fluids, ORS, zinc supplementation along breastfeeding and family food in diarrhea.
- Rotavirus vaccines are efficacious against rotavirus morbidity and mortality and have the potential to substantially reduce child mortality in low-income countries including Bangladesh.

So, it is the time to include rotavirus vaccines in our EPI schedule. In addition all these above mentioned interventions should be practiced exclusively in our country for reduction of diarrhea deaths.

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Original article

Effects of wood dusts on PEFR in exposed male workers.

Mohammad Nahid Salman[1], Chandra Rani Sarkar[2], A T M Zoadur Rahim Zahid[3]

ABSTRACT

BACKGROUND: *Occupational and environmental lung diseases are the major problems of clinical medicine. The woodworkers are constantly exposed to high amount of visible ambient air particulate matter mostly without any respiratory protective device. Therefore, the inhalation of dusts over periods of time leads to impaired lung functions.* ***OBJECTIVES:*** *To observe the effects of wood dust exposure on* ***PEFR*** *in male wood dust workers.* ***METHODS:*** *This cross-sectional study was conducted in the Department of Physiology, Rangpur Medical College, Rangpur from July, 2015 to June, 2016. Total 100 male subjects aged 20-50 years were selected for the study. Among them 50 were apparently healthy workers exposed to wood dust, and 50 apparently healthy height, weight & BMI matched subjects not exposed to wood dust were selected as control from surrounding community. Their pulmonary functions were studied by measuring* ***PEFR.*** *For statistical analysis unpaired 't'-test was performed by computer based software SPSS-17.0 version for windows.* ***RESULTS:*** *The mean measured and mean percentage of predicted value of PEFR were significantly ($p<0.001$) lower in wood dust exposed workers (WD- EW) than the control group (WD-NEW).* ***CONCLUSION:*** *Therefore, from this study, it may be concluded that lung function parameter PEFR decreases in non- smoker male wood dust exposed workers.*

KEY WORDS: Wood dust workers, sawmill, Spirometric test, Peak expiratory flow rate (PEFR).

INTRODUCTION

Occupational health advocates the adaptation of work to man and of each man to his job[1]. The increasement of industrialization and modernization in the whole world causes increase in occupational and environmental lung diseases[2]. Sawmilling industries play a vital role in the development of wood-based industries of Bangladesh. In Bangladesh,7 million people (5.2% of the population) are suffering from asthma[3]. It has been estimated that 2-5% of patients with asthma have occupational asthma[4]. Wood dust is a light brown or tan fibrous powder like substance generated when timber is processed. It consists mainly of cellulose, polyoses and lignin[5]. Besides, wood contains many microorganisms including fungi, toxins and chemical substances and they may significantly affect human health[6]. The lung with it's extensive surface area, high blood flow and thin alveolar epithelium is an important site of exposure with substances in the environment[7]. Wood dust of 5µm or more become trapped in the upper respiratory system and particles of under 5µm are directly inhaled in to lower respiratory system and are retained there[8]. There they irritate the lungs setting up an inflammation in the small airways. During healing of the inflammation fibrosis leads to airways obstruction[9]. Pulmonary function tests are the basic tools for evaluating the effects of

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exposure of wood dusts on respiratory system. It has been beneficial in the early recognition of pulmonary dysfunctions in patients considered to be normal on the basis of clinical and radiological examination[10]. Among the pulmonary function tests, Spirometry is a simple and useful test to identify and monitor respiratory functions impairment[11]. Studies of respiratory morbidity and lung function assessment have been performed among workers from various occupations. But there is hardly any study among sawmill and other wood industry workers in Bangladesh[7]. Therefore, the aim of this study is to estimate the effects of occupational exposure of wood dusts on the lung functions in the sawmills and other wood industry workers by Spirometric measurement of Peak Expiratory Flow Rate (PEFR).

METHODS

This cross- sectional study was conducted in the Department of Physiology, Rangpur Medical College, Rangpur from July, 2015 to June, 2016. Out of total 100, 50 apparently healthy non- smoker male workers exposed to wood dust (WD- EW) for at least 6 months, age ranged 20- 50 years were taken as study group. They were selected from different sawmills (Hajipara, CO Bazar, Kerani Hath and other places) of Rangpur city. Another 50 apparently healthy, age and BMI matched male wood dust non- exposed workers (WD- NEW) were also included as control for comparison. All the subjects belonged to lower socioeconomic status. After selection of the subjects the objectives, perspective, benefits and risk of this study were briefed in detail to the study subjects. An informed written consent was taken from all the participants. Ethical committee and Thesis protocol review committee of Rangpur Medical College approved the study protocol. A detailed medical and family history of all subjects was recorded in a performed questionnaire. Through physical examination of study subjects were done and documented. Height and weight of the subjects were measured for calculation of BMI. For assessment of lung function, PEFR of all subjects were measured by using a digital spirometer. For statistical analysis, unpaired students 't'- test was performed by computer based software SPSS-17.0 version for windows.

RESULTS

Demographic data of all subjects are presented in Table I

The mean predicted value of PEFR was compared between WD- EW & WD- NEW and there was no statistically significant difference between 2 groups. The mean measured value of PEFR were significantly lower ($p<0.001$) in WD- EW, than those of WD- NEW. The mean percentage of predicted value of PEFR were significantly lower ($p<0.001$) in WD- EW, than those of WD- NEW (Table II).

Table I: Distribution of subjects according to Mean (±SD) age and BMI in both groups.

Parameters	WD- NEW (n= 50)	WD- EW (n= 50)
Age (years)	38.4000 ± 4.89481	38.1200 ± 3.27414
BMI (Kg/m^2)	22.3480 ± 1.67115	22.7180 ± 1.30238

Data are expressed as mean ± SD.
Statistical analysis was done by unpaired student's 't' test.
n= total number of subjects.
WD- NEW= Wood dust non- exposed workers. WD- EW= Wood dust exposed workers.

Table II: Percentage of predicted value of PEFR in both groups.

Parameter	Value	WD-NEW (n= 50)	WD-EW (n= 50)
PEFR (Liters)	Predicted value	8.6288 ± 0.45416	8.6614 ± 0.27627
	Measured value	8.6236 ± 0.63562	4.7894 ± 1.58965***
	Percentage of predicted value	100.00 ± 5.29150	54.8600 ± 17.67508***

Data are expressed as mean ± SD ***= $P < 0.001$.
Statistical analysis was done by unpaired student's 't' test.
N= number of subjects in each group. WD- NEW= Wood dust non- exposed workers.
WD- EW= Wood dust exposed workers.

Figure 1: Bar diagram showing Mean (±SD) measured value of PEFR in

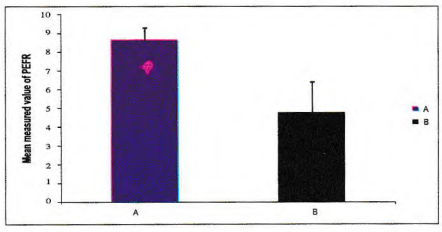
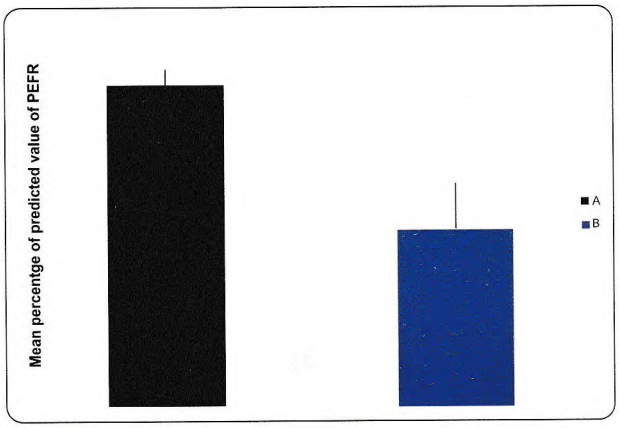


Figure 2: Bar diagram showing Mean (±SD) percentage of predicted value of PEFR in group A (WD- NEW) and group B (WD-EW). group A (WD- NEW) and group B (WD- EW).



DISCUSSION

In this study mean measured value of PEFR were significantly lower in male workers exposed to wood dusts. These findings are similar with those of some other researchers[9], [10,12,13,14,15,16]. The harmful effects of wood dust on pulmonary function in wood dust exposed workers have been noted in our study. This may be due to the fact that chronic wood dust exposure impairs the phagocytic activity of alveolar macrophages and affects the Mucociliary performance. Normally macrophages dissolve the dust by surrounding it but when there is dust overload, the macrophages fail to completely clear the dust. Consequently, the dust particles lodge in and irritate the lung setting up an inflammation in the small airways of the lung. The healing of the inflammation by fibrosis leads to thickening of lining of airways leading to obstruction. Thus decreasing pulmonary function (decreased PEFR)[9]. Besides, wood dust can contain many biological organisms such as endotoxins, gram- negative bacteria and allergenic fungi and mold that may affect respiratory and allergic status. These agents cause increased bronchial responsiveness and thereby damaging the bronchial epithelial cells which might lead to impaired PEFR[17,18]. The exposure to wood dusts or to bronchoactive substances causes alveolitis leading into early parenchymal damage. Secondary to an alveolitis, the thickening of the alveolar capillary membrane occurs. This results into impairment of diffusion capacity[19]. Personal exposure to wood dust contains contributions from many sources in the production facilities such as the machine present in own working place, other machines in the vicinity, dust carried by recirculated air or dust suspended by compressed air or by sweeping which might be associated with decreased PEFR[20]. Chronic saw dust exposure causes bronchial irritation which leads to inflammatory changes in the respiratory tract causing increased airway resistance thereby bringing about the remodeling of the airway and consequently lung dysfunction (decreased PEFR)[16].

LIMITATIONS

The study was conducted in a selected area. So study population might not represent the whole community. Beside this, because of time limitations, the study was conducted with small sample size. Large sample size would have given a better result. And the sample was taken purposively. So there may be chance of bias which could influence the result.

RECOMMENDATIONS

To be more conclusive the following recommendations are proposed:
- Similar type of study with larger sample size.
- Measurement of wood dusts concentration and endotoxin level in the environment of work place for every 6 months.

CONCLUSION

From this study, it may be concluded that lung function parameter PEFR decreases in non-smoker male wood dust exposed workers. So use of respiratory protective deviced and use of face mask must be advocated in this group of people to prevent possible chronic obstructive airway disease.

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Conflict of interest: None

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Original article

Effects of maternal anaemia on morphology of human placenta.

Happy Roy[1], Selina Anwar[2], Narayan Chandra Saha[3], Nahida Nazmun Naher Akand[4], Afsana Khanam[5], Afrin Akther Luna[6].

ABSTRACT

BACKGROUND: *Placenta is an organ that is essential to the survival and growth of the foetus of the mammals as it forms a functional unit between the mother and foetus. Maternal anaemic disorders may have a deleterious impact on placenta which may lead to poor foetal outcome.* ***OBJECTIVE:*** *Quantitative estimation of the morphological features of placenta of anaemic mother as compared to placenta of normal mother.* ***METHODS:*** *This cross sectional, descriptive type of study with some analytical components were carried out on 100 placentae (anaemic and control) collected from the Department of Gynaecology and Obstetrics, Rangpur Medical College and Hospital, Rangpur just after delivary from July, 2015 to June, 2016. Out of the 100 placentae 38 were from non-anaemic mothers regarded as control group and 62 were from mothers with anaemic pregnancy regarded as anaemic group. Among the 62 anaemic pregnancies, 20 were from mild anaemic mother, 38 were from moderate anaemia, 4 were from severe anaemic mothers.* ***RESULTS:*** *The mean (± SD) values of weight of placentae in control group was 425 ± 69.27 (gm) and were 405.29 ± 80.65 (gm), 400.95±79.05 (gm) and 392± 123.92 (gm) in mild, moderate and severe anaemic groups respectively. The mean (± SD) values of diameter of placentae in control group was 17.93 ± 1.34 (cm) and were 17.18 ± 2.12 (cm), 17.32 ± 2.15, 17.37 ± 3.80 (cm) in mild, moderate and severe anaemic groups respectively. The mean (± SD) values of thickness of placentae in control group was 13.48± 2.95 (mm) and were 13.36 ± 3.46 (mm), 13.87 ± 5.18 (mm), 13.90 ± 2.19 (mm) in mild, moderate and severe anaemic groups respectively. The comparisons among the study and control groups regarding gross morphological variables of placentae were not statistically significant (p>0.05).* ***CONCLUSION:*** *From this study it can be concluded that anaemia does not affect the morphological variables of placenta, therefore doesn't affect the foetal outcome.*

KEY WORDS: Anaemia, Placenta,Morphology.

INTRODUCTION

The placenta is a vital organ for the maintenance of a normal pregnancy. Foetal growth and well-being depends on the functional and structural component of the placenta[1]. Any disease either associated or aggravates with pregnancy, like haematological disorders, such as maternal anaemia affects the placenta. Anaemia leading to hypoxia may cause changes in structure of placenta. Placental abnormalities therefore can be an 'early warning system' for foetal problems[2]. If after child birth, the placenta is studied thoroughly, it provides great knowledge about the prenatal wellbeing of mother and baby[3]. In pregnancy, anaemia has a tremendous effect on placenta[4]. The placenta is foeto-maternal organ, which starts to develop at implantation of blastocyst and is delivered with the foetus at birth. It connects two genetically distinct individuals, the mother and the foetus, and serves as an intermediary between maternal

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and foetal circulations. It has many physiological functions, including the exchange of respiratory gases, metabolites, nutrients and waste products as well as the production of hormones and the metabolism of xenobiotics[5]. It is the site of exchange between maternal and foetal circulation. Placenta is the structure where foetal and maternal tissues come in direct contact without rejection[6].Though not much attention was given on placenta in pregnancy with anaemia, research workers found variable results in this field. When pregnancy is complicated by maternal anaemia, some workers stated it causes development of big placenta[1,2,7,8,9,10,11,12]and they concluded that anaemia in pregnancy is associated with larger placental weight. So, these babies have a greater risk for hypertension in later life[13,1]. But some workers[14,15,16] observed decreased placental weight associated with maternal anaemia. To the best of our knowledge very few researches have been carried out in this regard in our country. Therefore, we have observed the gross morphology of placenta just after delivery in anaemic pregnant women.

MATERIALS and METHODS

The cross-sectional study was carried out in the Department of Anatomy, Rangpur Medical College,Rangpur from July, 2015 to June, 2016. For this, 100 placentae were collected from the Department of Gynaecology and Obstetrics, Rangpur Medical College and Hospital, Rangpur just after delivery, with prior protocol approval from Ethical Review Committee of Rangpur Medical College, Rangpur. Out of the 100 placentae 38 were from non-anaemic mothers regarded as control group and 62 were from mothers with anaemic pregnancy regarded as anaemic group. Among the 62 anaemic pregnancies, 20 were from mild anaemic mothers, 38 were from moderate and 4 were from severe anaemic mothers.Morphological features of placenta in control group and anaemic groups were observed, measured and compared. These features include weight (gm), diameter (cm) and thickness (mm) of placenta.

Procedure of gross morphological study Just after collection, the specimens were brought to the laboratory of the Department of Anatomy, Rangpur Medical College, and Rangpur for study. Each specimen was gently washed in tap water on a dissection tray; the film of blood and blood clots on the maternal surface were removed with hand gently, without disturbing any firm clot which were embedded in the substance of placenta.The umbilical cord was cut 2 cm away from disc margin. The amniotic membrane was trimmed at disc margin with a scissor. Then the placenta was mopped and dried with dry cotton pad and blotting papers very gently. Then gross morphological measurements were done in a fresh state in each group, which includes weight, diameter and thickness of placenta.

Weight: The placenta was mopped with cotton wool pad and blotting paper. Measurement of weight of the placenta was done by means of digital balance graduated in grams (gm).

Diameter: At first, the placenta was placed flat on a tray. The maximum diameter was measured with a metallic scale graduated in centimeters (cm). Then a second maximum diameter was taken at right angle to the first one. The mean of two measurements was considered as the diameter of the placenta expressed in centimeter.

Thickness: Placental thickness was measured with a long needle at five points in each placenta. After placing the placenta on fetal surface, the placenta was divided arbitrarily into three zones of equal parts by drawing two circles on the maternal surface (Fig1B). Thickness was measured from five points, one from the central part, two from middle and two from peripheral part. The peripheral points were taken within the outer zone on a line perpendicular to the previous imaginary line. The depth pierced by the needle was measured by metallic tape (1C). Finally the mean of all five measurements was calculated and considered as thickness of the placenta (Fig 1).

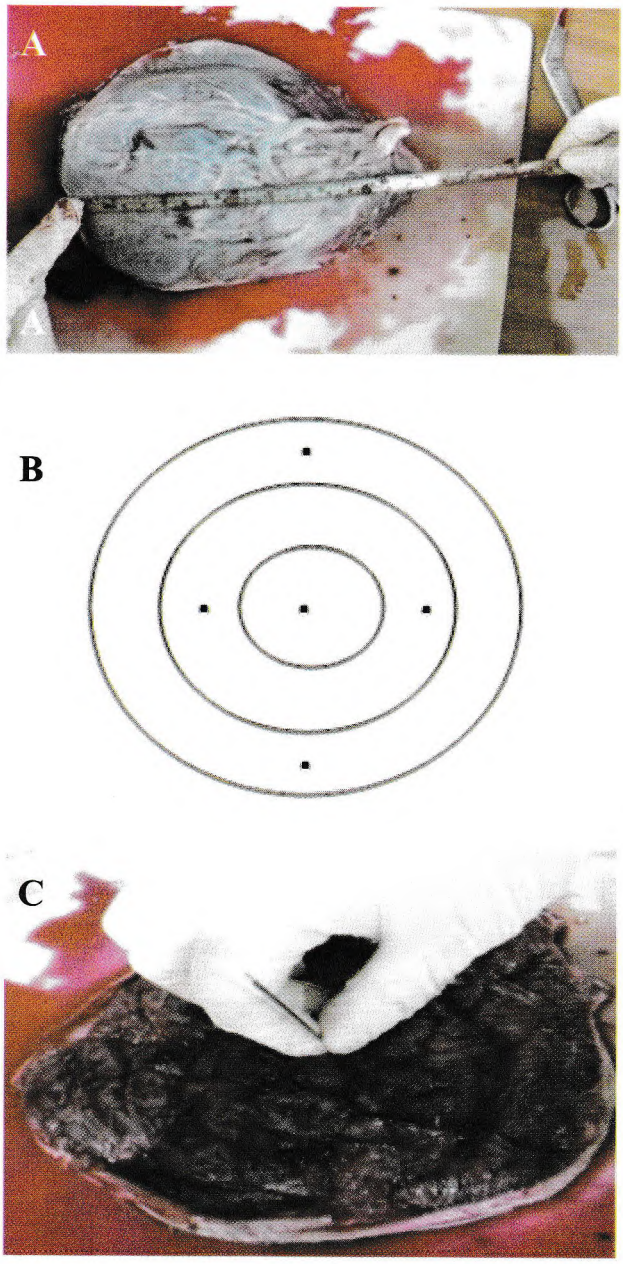


Fig 1) Diagrammatic representation of A) Diameter B)thickness and C) Photograph showing procedure of measurement of thickness.

The statistical analysis was carried out using the Statistical Package for Social Sciences (SPSS version 16.0) and Microsoft Office Excel 2007 for windows software. After collecting the data and the means, Standard Deviations (SD) etc were calculated for various parameters of each group. The statistical significance of the difference of variables between the anaemic and control groups was evaluated by independent samples ANOVA test. The difference was regarded statistically significant if the P-value was equal to or less than 0.05.

RESULTS

The morphological measurement of placenta in both control and maternal anaemia groups were almost similar and differences were not statistically significant (p>0.05) (Table I).

Table I. Mean (+SD) of morphological placental measurements in control and Anaemic group.

Groups	Weight (gm)	Diameter (cm)	Thickness (mm)
Control Group (n=38)	425.34±69.27	17.93±1.34	13.48± 2.95
Mild (n-20)	405.29±80.65	17.18±2.12	13.36± 3.47
Moderate (n-38)	400.95±79.05	17.32±2.15	13.88±5.18
Severe (n-4)	392 ± 123.92	17.37±3.80	13.90 ± 2.19
p value			
Cont vs mild	0.670 ns	0.515 ns	1.00 ns
Cont vs moderate	0.677 ns	0.528 ns	0.973 ns
Cont vs severe	0.848 ns	0.949 ns	0.997 ns

Results are shown as Mean + SD
P values reached from ANOVA test
S: significant at 95% confidence level
NS: non-significant.

The mean (± SD) of weight of placentae in control group was 425 ± 69.27 (gm) and were 405.29 ± 80.65 (gm), 400.95±79.05 (gm) and 392± 123.92 (gm) in mild, moderate and severe anaemic groups respectively. These data shows a decrease in weight of placenta in anaemic group when compared with weight of

placenta in control group. But the difference was not statistically significant ($p>0.05$). Figure 2 displays the highest proportions of placental weight lies between 360 gm and 452 gm (50%) in control and the anaemic groups but the percentage varies.

The mean (± SD) of diameter of placentae in control group was 17.93 ± 1.34 (cm) and were 17.18 ± 2.12 (cm), 17.32 ± 2.15, 17.37 ± 3.80 (cm) in mild, moderate and severe anaemic groups respectively. These data showed slightly lower values of diameter of placenta in anaemic groups when compared with control group but the difference did not reached the significant level ($p>0.05$). Fig 3 shows that there is a right-ward shift of the curve of placental diameter in mild and moderate anaemic group but leftward in severe anaemic group than control group.

The mean (± SD) values of thickness of placentae in control group was 13.48± 2.95 (mm) and were 13.36 ± 3.46 (mm), 13.87 ± 5.18 (mm), 13.90 ± 2.19 (mm) in mild, moderate and severe anaemic groups respectively. These data showed a slightly higher value of thickness of placenta in moderate anaemic group when compared with thickness of placentae in control group (Table1), but did not reached the significant level ($p>0.05$). Figure 4 shows the highest proportions of placental thickness distributed between 9.00 and 13.90 mm in control and in mild and moderate anaemic group.

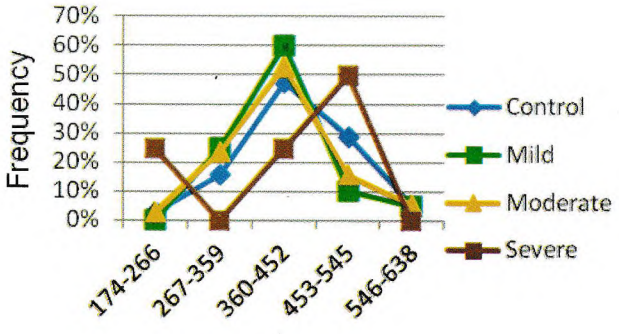


Fig 2:Weight of placenta in gm

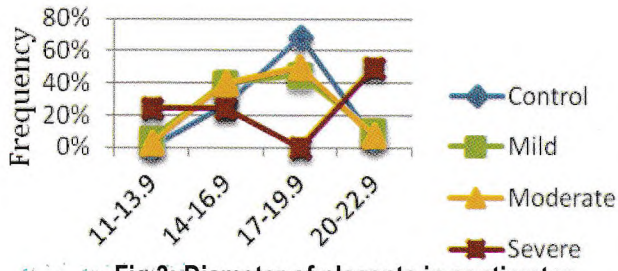


Fig 3: Diameter of placenta in centimeter

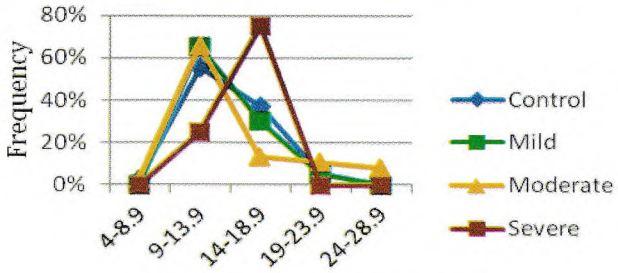


Fig 4: Thickness of placenta in mm

DISCUSSION

Study of the morphology of the placenta is very important and useful in learning its relation and its predictive value to foetal weight and possible birth defects[17]. In normal pregnancy two stages of growth was observed, in first stage of growth, which terminates at approximately 36 weeks of gestation, is characterized by a progressive increase in parenchymal components and in second stage, which extends from around 36 weeks to term, is called maturation stage, as because it is characterized by substantial foetal growth but without any increase in placental functional tissues[18]. It has been observed that the total placental volume gradually increases along with the gestational age ranged from 170 ml at 28 weeks to 723 ml at term[19]. Effects of anaemia on pregnancies are reflected in the changes of placenta both macroscopically and microscopically, these placental changes are directly proportional to the disease process and its severity[20].

In this study, we have demonstrated decreased weight of placenta in anaemic group in comparison to weight of placenta in control group. But the difference was not statistically significant. Some research workers had observed decreased placental weight associated with maternal anaemia[3,14,21]. However others

observed that pregnancy with maternal anaemia causes development of big placenta[7,8,9,10,1,2,11,12,]. In our study, though the result was not statistically significant, we have also observed that weight decreases according to severity of anaemia. It has been observed that in mild and moderate anaemia compensatory hypertrophy of placenta can occur due to hypoxia but in severe anaemia, placenta become affected so much that it cannot undergo compensatory hypertrophy[2].

Placental diameter was measured and compared between control and anaemic groups in the present study, where we have observed a slight decrease in diameter of placenta in anaemic group when compared with control group. Comparisons among the four groups were statistically insignificant. This finding was in contrast with some investigators, who observed that diameter was greater in anaemic group than the control group and that was statistically significant[1,22]. Others found reduced placental diameter associated with maternal anaemia[2]. Reduced diameter of placenta may results in chronic heart failure in adult life[23].

Again, in present study, we have observed non significant increase in thickness of placenta in moderate and severe group when compared with thickness of placenta in control group. Similar findings were observed by other studies[1,23].

The present study shows that slight decrease of placental weight and diameter in different anaemic group but slight increase in thickness of placenta in moderate and severe group when compared with control group. Placental thickness increases steadily with gestation and probably accounts for the gain in the placental weight. The thickness reflects the amount of parenchyma and the volume of retained intervillous maternal blood and villous surface area increases with gestation. It has been observed that several other factors can influence placental size such as parity, maternal age, genetic factors, socio-demographic condition[13]. However in our study we did not compare placental size with parity, maternal age, genetic factors, and socio-demographic condition. Another limitation of this study was that placental weight was not correlated with haemoglobin level.

CONCLUSION

From this study it can be concluded that anaemia does not affect the morphological variables of placenta, therefore doesn't affect the foetal outcome. Further study, such as comparison of same study parameters with parity, maternal age, genetic factors, socio-demographic condition and correlation of placental weight with haemoglobin level may give more conclusive findings.

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Original article

Prevalence of nonadherence to drug treatment among type 2 diabetic patients in tertiary diabetic care hospitals in Dhaka city.

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ABSTRACT

BACKGROUND: *World Health Organization (WHO) projects that Diabetes Mellitus (DM) will be the 7th leading cause of death by 2030. It is a major cause of blindness, kidney failure, heart attack, stroke and lower limb amputation. However, with proper treatment its consequences can be avoided or delayed. Unfortunately, like other chronic diseases the prevalence of non adherence to drug treatment among type-2 diabetic patients is high.* ***OBJECTIVES:*** *The objective of the study was to estimate the prevalence of non adherence to drug treatment among type 2 diabetic patients attending at two tertiary diabetic care hospitals in Dhaka city.* ***METHODOLOGY:*** *A cross sectional study design was used. The study population was taken purposively. A pretested structured questionnaire with closed-ended questions was used to record the patients' responses. Adherence or non-adherence was assessed by a 4-item Morisky Medication Adherence Scale (MMAS). Prior to start the study, the research protocol was approved by the Institutional Review Board (IRB) of BSMMU, Dhaka and informed written consent was taken from the participants.* ***RESULTS:*** *The prevalence of non-adherent patient was 63.3% and that of adherent patient was 36.3%.* ***CONCLUSION:*** *The study showed that non adherence was quite high among diabetic patients.*

KEYWORDS: Prevalence, Contributing factors, Non adherence, Type2 Diabetes Mellitus, Drug treatment, Modified Morisky Adherence Predictor Scale.

INTRODUCTION

Bangladesh, like many transitional nations is facing the demographic and epidemiological transition. In a review of twenty three developing countries, Bangladesh was found to have the ninth highest rate of age- standardized mortality among the included countries due to chronic diseases, primarily cardiovascular diseases and diabetes[1]. Some 51% of deaths in Bangladesh are due to non-communicable diseases and other chronic health conditions[2]. WHO states that non-adherence to medications is a "worldwide problem of striking magnitude"[3]. Poor medication adherence can cause negative health outcomes such as worsening disease or even death and studies showed that there was an association between poor adherences to medications indicated for chronic diseases with health resources utilization[4]. Poor medication adherence also may result in increased health care cost. There are 33%-69% of drug-related hospitals admissions in US are because of poor medication adherence, along with a cost of about $100 billion a year[5].

So far there is no gold standard method to measure medication taking behavior. Patient self-report or questionnaire is one of the important indirect methods of measuring

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medication adherence and persistence and it's the most commonly used method in the clinical setting[6]. From the perspective of a health care provider, therapeutic compliance is a major effect on clinical issues for two broad reasons. Firstly, non adherence is directly associated with poor treatment outcome in patients with diabetes, epilepsy, AIDS, asthma, tuberculosis, hypertension. Besides undesirable impact on clinical outcomes, non adherence is associated with an increased financial burden for society. For example, Non adherence has been associated with excess urgent care visits, hospitalizations, and higher treatment costs[3]. To the best of my knowledge, evidence based research that evaluate non adherence to drug treatment among type 2 diabetic patients in Dhaka city was not available. So, this study was conducted to estimate the prevalence of non adherence to drug treatment among type 2 DM patients using medication morisky adherence scale.

METHODS

This Cross sectional analytical study was carried out at Bangladesh Institute of research and Rehabilitation in Diabetes, Endrocrine and Metabolic Disorders (BIRDEM) and Bangladesh Institute of Health Science (BIHS) in Dhaka city, from January, 2016 to December, 2016. For the study 364 type 2 diabetic patients were randomly selected from the patients attending OPD of the two hospitals.The patients aged more than 17 years, were registered Type 2 Diabetic patients and at least 1 year history of Diabetes Getting a fixed drug therapy for the last six months. A structured questionnaire with closed-ended questions was used to record the patients' responds. Adherence or non-adherence is assessed by a 4-item Morisky Medication Adherence Predictor Scale (MMAPS), administered in a dichotomous version (Yes/No). MMAPS is part of the WHO case management adherence guideline (CMAG)assessment tools, and it is a validated scale mostly used to classify patients on medication as either high or low on motivation and knowledge domain, thus a commonly used self-report method to assess patients' adherence to existing therapy. MMAPS is 4-item questions which assesses non-adherence. Adherence in this study was defined as no positive response (or a total score of zero) to the 4-item question on the MMAPS. Binary variables using categorization of <1 versus ≥ 1 for classification of patients into adherent and non-adherent status respectively, were based on the distribution of data following an extensive review of the literature. Outcome variable was non adherence to drug treatment among type 2 diabetic patients in two tertiary diabetic care hospitals in Dhaka city. Variables related to socio-demographic data were age, sex, marital status, education level, residence, occupation and monthly income. Data was collected by face-to-face interview by a questionnaire which took maximum 15 minutes time to complete. Before preceding the data collection, the detail of the study was explicitly explained to each eligible respondent and both written & verbal consents were obtained from the respondents. Collected data sheets were stored under secure lock and key at the Department of Public Health, BSMMU and were accessed by only myself. A pilot testing was conducted to validate the MMAS in Bengali language. Categorical variables were expressed in percentages. Means of the continuous variables were calculated. Socio demographics were calculated using descriptive statistics. Prior to the commencement of this study, the research protocol was approved by the Institutional Review Board (IRB) of BSMMU, Dhaka. The aims and objectives of the study along with its procedure, risks and benefits of this study were explained to the participants in easily understandable local language and then informed consent was taken from them. All information and records were kept confidential. The data collected was solely used for the research purpose. Analysis of collected data was done by SPSS version 17 for windows and p value <0.5 was taken as level of significance.

OPERATIONAL DEFINITION:

Non adherence to drug treatment in Type 2 Diabetic patients: Failure to have prescription medications dispensed or renewed, omission of doses and premature discontinuation of prescribed drug regimen.

RESULTS

Socio demographic factors studied are: age, sex, marital status, years of education, monthly house hold income. The mean age of the respondents was 45.37 years. The mean years of education were 10 years. And the mean of house hold income was 47,000 taka. Among the respondents 50% was male and 50% was female. Majority (70%) of the participants was married, 10 % were single, 13.35% were widowed and 6.75% were divorced (Table I & Table II).

Table I: Socio demographic characteristics of the respondents (N=330).

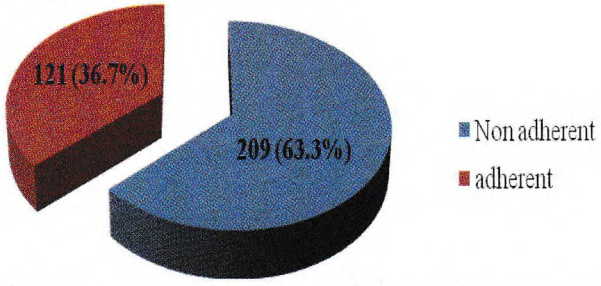
Variables	Mean±SD
Age (years)	44.62 ±9.778
Years of education	10.22±4.830
Monthly household income (in BDT)	48,200±26,728

Table: II: Distribution of the subjects according to sex and marital status (n=330).

Variables	Frequency(N)	Percentage (%)
Sex		
Male	168	50.9
Female	162	49.1
Total	**330**	**100%**
Marital status		
Single	33	10%
Married	234	70%
Widowed	42	13.3%
Divorced	21	6.7%
Total	**330**	**100%**

The prevalence of non-adherent patient was 63.3 % (209) and that of adherent patient was 36.7% (121) (Fig:1).

Fig 1: Distribution of patients according to prevalence rate of adherence and non-adherence (N=330).



Among the total respondents 130 persons (43%) were from BIHS and 170 persons(56%) were from BIRDEM. The percentage of non adherence was higher in BIHS (69.2%) than BIRDEM (58.82%) (Table III).

Table III: Frequency of adherent and non adherent patients at BIHS and BIRDEM.

Institute	Non-adherent patient [N (%)]	Adherent patient [N (%)]	Total
BIHS	99 (69.23%)	44 (30.77%)	143
BIRDEM	110 (58.82%)	77 (41.18%)	187
Total	209 (63.33%)	121 (36.67%)	330

N= Number of patients

DISCUSSION

This cross sectional study was carried out among 330 Diabetic patients and the prevalence of non adherence to drug treatment was 63.3%. According to a previous study in Bangladesh the non-adherence rate to diet and exercise were 88% and 25%, respectively. But there is lack of data on non-adherence specifically to drug treatment in type 2 diabetic patients in Dhaka city. As it has been mentioned earlier that, the extend of non-adherence varies widely, and in different studies it has been recorded as low as 10% and as high as 92%[7]. Studies reveal that patients with chronic illnesses take only~50% of medications prescribed for those conditions[8]. Furthermore, the rates of the non adherence differ greatly with different type of measuring methods. More than 20 studies published in the

past few years found that the non adherence with oral medications for type 2 diabetes mellitus ranged from 35% to 55 % [9]. Adherence to long-term exercise programs can vary between 10% and 80%. Data from different studies show that adherence to oral hypoglycemic agents (OHA) ranged from 36% to 93% in patients remaining on treatment for 6–24 months[10]. Among the total respondents 130 persons (43%) were from BIHS and 170 persons (56%) were from BIRDEM. The percentage of non adherence was higher in BIHS (69.2%) than BIRDEM (58.82%).

CONCLUSION

The study showed that non adherence was quite high among diabetic patients. If the patients do not follow or adhere to the prescribed treatment carefully, the intended beneficial effects will not be achieved even if the treatment plan designed most carefully and scientifically. The study was done with a hope that it will illustrate the extent of the problem of non adherence to drug treatment among type 2 diabetic patients and will make health care providers conscious about it. It's time to find out the factors responsible for this alarmingly high prevalence of non adherence among the type 2 diabetic patients and to take necessary actions to counter this phenomenon.

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Peritoneal inclusion cyst: A case report

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ABSTRACT

Peritoneal inclusion cyst was first described in 1979 by Smith and Mennenmeye. Peritoneal inclusion cyst is a lesion found on any abdominal peritoneal surface that occurs most frequently in premenopausal women. We report the case of a 44 years old woman, who presented with a history of lower abdominal pain with abnormal uterine bleeding. A pelvic ultrasound revealed a bulky uterus with thick endometrium. The patient was managed by laparotomy with total abdominal hysterectomy and incidentally found multiple cysts on serosal surface of the uterus. Final histopathological report revealed peritoneal inclusion cyst.

KEYWORDS: Peritoneal inclusion cyst, Pelvic inflammatory diseases, peritoneal inflammatory cyst.

INTRODUCTION

Peritoneal inclusion cysts (PIC), is also known as "peritoneal mesothelial cysts", "peritoneal pseudocysts" and "inflammatory cysts of the pelvic peritoneum"[1]. It is a benign condition and seen in females of reproductive age group[2-4]. Most important causative factor is being pelvic inflammatory disease[5]. Other causes are being prior abdominal surgery[6]. With improvement of skill of surgeons and surgical techniques it is gradually becoming less frequent. Surgery is needed in symptomatic cases only.

Case report

A 44 years old female came to our hospital with complains of pain in lower abdomen for 3 months and excessive uterine bleeding for 5 days. She was married for 20 year, para 3, abortion 1, with bi-lateral tubal ligation done 15 years back. She had 3 normal deliveries, the last delivery being 15 years ago. Her general and systemic examination revealed no abnormalities. Abdominal examination showed an infraumbilical transverse scar of tubal ligation. There was no tenderness, guarding or rigidity. Speculum examination of the vagina also showed no abnormality. Pelvic ultrasonography showed a bulky uterus with thick endometrium and the ovary showed no abnormality. Abdominal ultrasonography also showed no abnormality. Her chest radiograph, electrocardiogram and biochemical investigations showed normal findings. During hysterectomy, multiple cysts were found in serosal surface of the uterus. Largest one measures 1.5 cm in diameter. When the cyst was opened, clear watery fluid came out. Both surfaces of the cyst wall were smooth. There were no nodules or solid areas in its wall. Histopathological examination of the cyst wall showed mainly collagenous tissue bundles, loose connective tissue and a few blood vessels. The inner surface of the cyst wall was lined by flattened single layer of cuboidal epithelium that looks liked benign mesothelial cells (Figure 1).



Figure 1: Histopathology of peritoneal inclusion cyst (H&E stain).

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DISCUSSION

There are many terminologies used for peritoneal inclusion cysts namely; benign cystic mesothelioma, peritoneal/mesenteric cysts, post-operative peritoneal cysts, inflammatory cyst of peritoneum. It is a benign condition, which typically occurs in the peritoneal cavity of women in the reproductive age group. However, it can rarely occur in men. Most of the patients having history of prior abdominal surgery, PID, or endometriosis are likely to develop PIC. The probable mechanism is injury to peritoneum due to PID or post operative adhesion, which reduces the absorptive capacity of peritoneum and peritoneal fluid gradually accumulates leading to the formation of cysts. This disease is quite rare and the male: female ratio is 1:5. Research articles revealed that seventy percent of the patients had history of prior insult to the peritoneum[7,8].

Peritoneal inclusion cysts usually occur in women in the reproductive age group. Most of them are reactive in origin[9,10]. Some of those located in the mesentery of the small intestine, mesocolon, retroperitoneum, spleen or kidney may be developmental[11]. They arise by invagination of the serosa. Finding may be incidental at laparotomy12. They usually cause lower abdominal pain and/or palpable mass. In this case, the patient was presented with complaints of lower abdominal pain for 3 months. She had H/O pelvic inflammatory disease too. She had history of bi-lateral tubectomy 15 years back. On laparotomy, multiple cysts was found over serosal surface of the uterus. They may be mistaken for a cystic ovarian tumor. Their septa and walls may contain abundant fibrous tissue. Their contents may be like those of the unilocular cysts, or they may be bloody. They are usually lined by a single layer of flat to cuboidal cells, though occasionally it may be of hobnail-shaped mesothelial cells showing bland nuclear features13. Though a malignant behavior is not seen in multilocular cysts, about 5% of them the recur one or more times, after months to many years, which may be as a result of the irritation caused by the operation for excision of the previous cysts.

CONCLUSION

Peritoneal inclusion cysts is a benign condition and occur in middle aged females .This disease present as multi-loculated cysts in the pelvis, with abdominal pain, distention or mass. Observation is enough for most of the cases. Surgery needed for presentations with complication in exceptional cases only.

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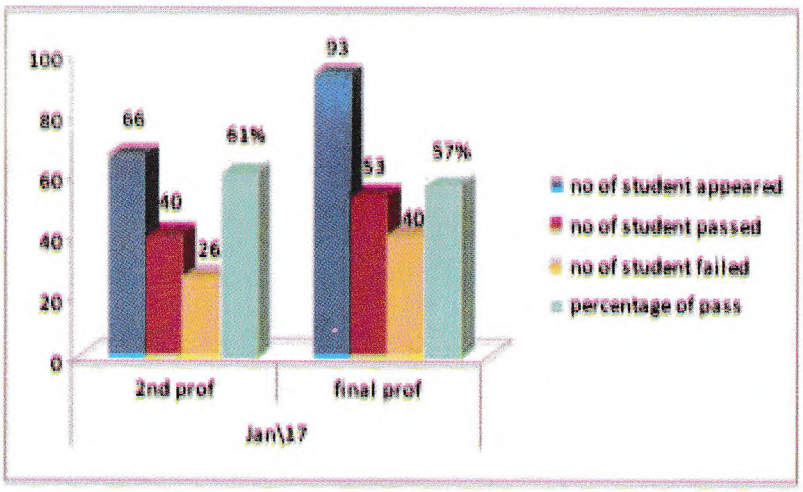
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Table I: Result of 2nd and final Professional MBBS Examinations in January, 2017.

Exam Year	exam name	no of student appeared	no of student passed	no of student failed	percentage of pass
Jan/17	2nd prof	66	40	26	61
	final prof	93	53	40	57

Figure 1: Result of 2nd and final Professional MBBS Examinations in January, 2017.

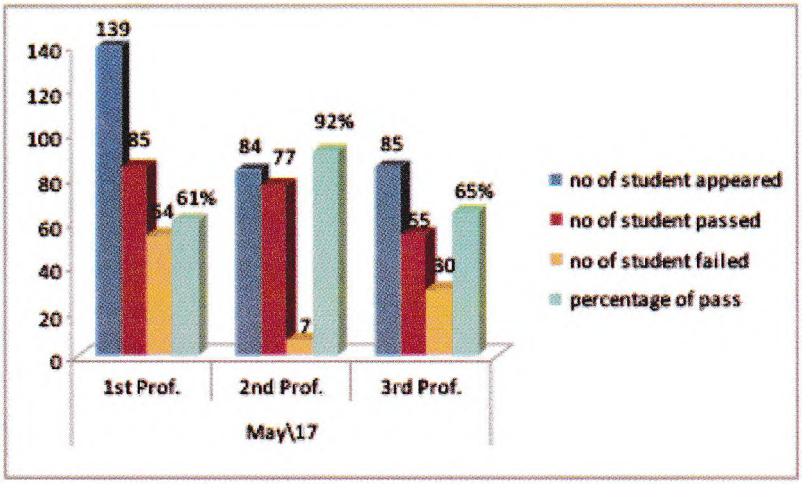


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Table II: Result of 1st, 2nd and final Professional MBBS Examinations in May, 2017.

Exam Year	exam name	no of student appeared	no of student passed	no of student failed	percentage of pass
May/17	1st prof	139	85	54	61
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	3rd prof	85	55	30	65

Figure 2: Result of 1st, 2nd and final Professional MBBS Examinations in May, 2017



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