

## Contents

### Editorial:

- COVID-19 an Emerging Infectious Disease (EID)** 3  
*khandaker S*

### Original Articles:

- Clinical Profile of COVID-19 Patients: Seeking Healthcare in Diabetic Association Medical College Hospital, Faridpur** 5  
*Biswas M A, Rahman A, Haque M M*
- Dementia and Co-morbid Risk Factors among Elderly: A Comparative Cross Sectional Study in Dhaka City** 9  
*Kabir M A, Islam T B, Akhiruzzaman, Ferdous S, Akhtar S, Sarker F, Ahsanuzzaman A K M*
- Nodule Size and Fine Needle Aspiration Cytology (FNAC): A Suitable Choice in Early Diagnosis of Thyroid Malignancy** 13  
*Ahmed Q S U, Yasmin S*
- Assessing Knowledge, Attitude and Practice (KAP) towards COVID-19 among Dhaka City Residents** 18  
*Chowdhury N S, Chowdhury N N, Afroz S, Akhiruzzaman, Begum N, Monami S*
- Association of IgG Antibody with Herpes Simplex Virus Type-2 among Women Having Spontaneous Abortion & Normal Delivery** 23  
*Saheduzzaman M, Hassan P, Al Hossain M M A, Sharmin Z, Hasan R, Zahan A*
- Preventive Practice with Hepatitis-B Vaccine among the Lab Technicians of some Selected Hospitals in Dhaka City** 27  
*Ahmed S U, Mafiz I*
- Review Article:**
- Characterizing Corona Virus Disease 2019 (COVID 19)** 31  
*Tarafdar M A*
- Case Report:**
- A Case Report: An Unusual Presentation of Takayasu Arteritis** 35  
*Rashid M H, Rana M S, Sajib S I, Bhuiyan M S R, Shawon M H H, Saha T*



Official Journal of  
**Diabetic Association Medical College, Faridpur**  
(An Institution of Faridpur Diabetic Association)

Web: [www.damcf.edu.bd/journal.html](http://www.damcf.edu.bd/journal.html)

E-mail: [journal.damcf@gmail.com](mailto:journal.damcf@gmail.com)

# Journal of Diabetic Association Medical College, Faridpur (JDAMC)

Vol. 5, No. 1, January 2021

---

## Editorial Board

---

### Advisory Board

Chairman, Governing Body  
Professor Dr. Dipti Pramanik  
Professor Dr. Jamal Uddin Ahmed  
Professor Dr. Md. Nasir Uddin

### Chairperson

Professor Dr. Md. Zohirul Islam Miah

### Editor-in-Chief

Professor Dr. Jitesh Chandra Saha

### Executive Editor

Professor Dr. AKM Asaduzzaman

### Editors

Professor Dr. Md. Harunur Rashid  
Professor Dr. Sk. Yunus Ali  
Professor Dr. Nasiruddin Ahmad  
Professor Dr. Md. Yusuf Ali

### Assistant Editors

Dr. Muhammad Nazrul Islam  
Dr. Bijoy Kumar Shaha  
Dr. Akhiruzzaman

### Members

Professor Dr. Shipra Sinha Roy  
Professor Dr. Sudhendu Prakash Biswas  
Professor Dr. Barun Kanti Biswas  
Professor Dr. Md. Rafiqul Islam  
Professor Dr. Khandaker Anowar Hossain  
Dr. Md. Saiful Arifin  
Dr. Md. Mesbah Uddin Khan  
Dr. Mohammad Saiful Hoque  
Dr. Dilip Kumar Das  
Dr. Lipika Sanjowal  
Dr. Khalifa Mahmud Walid  
Dr. Muhammad Asaduzzaman Biswas  
Dr. Hasnina Akter

### Treasurer

Dr. Md. Isahaque Ali Khan

### Editorial Staff

Ashikuzzaman Suzan

## General Information

The Journal of Diabetic Association Medical College, Faridpur (JDAMC) is the official journal of Diabetic Association Medical College, Faridpur. The journal is published twice in a year i.e. January and July. It accepts original articles, review articles, and case reports. Complimentary copies of the journal are sent to libraries of all medical and other relevant academic institutions in the country and selected institutions abroad.

Papers for publication should be sent to Editor-in-Chief, JDAMC, Diabetic Association Medical College, Faridpur, Bangladesh. Only Scientific papers written in English will be accepted. While every effort is always made by the editorial board to avoid inaccurate or misleading information appearing in JDAMC, information within the individual article are the responsibility of its author(s), JDAMC and its editorial board accept no liability whatsoever for the consequences of any such inaccurate and misleading information, opinion or statement.

**Published by:** Professor Dr. Jitesh Chandra Saha  
Editor-in-Chief, JDAMC

**Designed by :** Nizam Khan

**Printed by :** Radiant Printing & Packaging  
27, Nilkhet Babupura, New Market  
Dhaka-1212. Phone: 01712571681

**Address of correspondence:** Editor-in-Chief, JDAMC

1st Floor, Room No-204, Diabetic Association Medical College, Faridpur.  
Jheeltuly, Faridpur-7800, Bangladesh. Cell: +8801711431902  
Web Address: [www.damcf.edu.bd/journal.html](http://www.damcf.edu.bd/journal.html); E-mail: [journal.damcf@gmail.com](mailto:journal.damcf@gmail.com)



## COVID-19 an Emerging Infectious Disease (EID)

Khandaker S

Corona virus (COVID-19) disease is a contagious one caused by severe acute respiratory syndrome corona virus 2 (SARS-Cov-2). The first case was identified in Wuhan, China on December 2019. Since then it spreads worldwide as an ongoing pandemic. The Corona virus can spread from an infected person's mouth or nose in small liquid particles when they cough, sneeze, speak, sing or breathe. These particles range from larger respiratory droplets to smaller aerosols. The virus spreads mainly between people who are in close contact with each other, typically within 1 meter (short-range).

Corona, a type of virus of many different kinds and among them some cause disease.<sup>1</sup> On 31 December 2019, the World Health Organization (WHO) was formally notified about a cluster of cases of pneumonia in Wuhan City, home to 11 million people and the cultural and economic hub of central China. By 5th January, 59 cases were known and none had been fatal. Ten days later, WHO was aware of 282 confirmed cases, of which four were in Japan, South Korea and Thailand. There had been six deaths in Wuhan, 51 people were severely ill and 12 were in a critical condition. The virus responsible was isolated on 7th January and its genome shared on 12th January. The cause of the severe acute respiratory syndrome that became known as COVID-19 was a novel corona virus, SARS-CoV-2.<sup>2</sup> On January 30, 2020, the WHO declared the COVID-19 outbreak a global health emergency. On March 11, 2020, the WHO declared COVID-19 a global pandemic.<sup>3</sup> This virus has a large family that cause illnesses ranging from the common cold to more severe diseases like Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS).<sup>4</sup> Corona viruses are zoonotic,<sup>4</sup> however no animal reservoir has yet been found.<sup>5</sup> Several known corona viruses are circulating in animals that have not yet infected humans but it appears that COVID-19 has crossed species from bats to snakes, and pangolins then to humans, initially via the live animal 'wet markets' of Wuhan.<sup>6</sup> As of 12 May, 82,591 new cases of COVID-19 worldwide were being confirmed daily and the death rate was over 4200 per day.<sup>7</sup> The US has the highest number of reported infections and deaths in the world. India, Brazil, Russia, and France have the highest number of infections and Brazil, India, Mexico, and Peru have the highest number of deaths after the US.<sup>4</sup> In Bangladesh, from 3rd January 2020 to 3rd September 2021, there have been 1,510,283 confirmed cases of COVID-19 with 26,432 deaths, reported to WHO.<sup>7</sup>

Seasonal variation from winter to summer, elevated

temperature and humidity has no effect on COVID-19 transmission.<sup>8</sup> The incubation period varies from 2 to 14 days. A person infected with the corona virus is contagious to others for up to 2 days before symptoms appear, and they remain contagious to others for 10 to 20 days, depending upon their immune system and the severity of their illness.<sup>4</sup> No age is immune for developing corona virus. Specially it become more severe in people who are older than 60 years or who have co-morbidities like lung or heart disease, diabetes or conditions that affect their immune system.<sup>9</sup>

A person can be infected when aerosols or droplets containing the virus are inhaled or come directly into contact with the eyes, nose, or mouth. The virus can also spread in poorly ventilated and/or crowded indoor settings, where people tend to spend longer periods of time. People may also become infected by touching surfaces that have been contaminated by the virus when touching their eyes, nose or mouth without cleaning their hands. Whether or not they have symptoms, infected people can be contagious and the virus can spread from them to other people.<sup>10</sup>

COVID-19 affects different people in different ways. Most infected people developed mild to moderate illness and recover without hospitalization.<sup>11</sup> Most common symptoms are fever, dry cough and tiredness. Relatively less common symptoms are aches and pains, sore throat, diarrhea, conjunctivitis, headache, loss of taste or smell, a rash on skin, or discoloration of fingers or toes. Moreover serious symptoms are difficulty breathing or shortness of breath, chest pain or pressure, loss of speech or movement. Patient should seek immediate medical attention if one has serious symptoms.<sup>12</sup> The Case Fatality Rate ranges from 0.25% to 10%.<sup>13</sup> Long-term effects COVID-19 symptoms can sometimes persist for months. The virus can damage the lungs, heart and brain, which increases the risk of long-term health problems.<sup>14</sup>

To test for the COVID-19 virus, a health care provider takes a sample from the nose (nasopharyngeal swab), throat (throat swab) or saliva.<sup>6</sup> Essential investigation is Real-Time Reverse Transcription Polymerase Chain Reaction (RT-PCR). Emerging tests are reverse transcription loop-mediated isothermal amplification (RT-LAMP), lung ultrasound and calprotectin.<sup>15</sup>

Currently, only one medication Remdesivir (Veklury) has been approved to treat COVID-19. Antibiotics aren't effective against viral infections such as COVID-19. The U.S. National Institutes of Health has recommended the corticosteroid dexamethasone for people hospitalized with severe COVID-19 who are on supplemental oxygen or need mechanical ventilation. The FDA has also granted

### Correspondence to:

Dr. Shumya Khandaker  
Lecturer, Department of Community Medicine  
Diabetic Association Medical College, Faridpur.  
E-mail: nila.18fmc@gmail.com



emergency use authorization for convalescent plasma therapy with high antibody levels to treat COVID-19. Many people with COVID-19 may have mild illness and can be treated with supportive care, aimed at relieving symptoms and may include: Pain relievers (ibuprofen or acetaminophen), Cough syrup or medication, Rest, Fluid intake.<sup>10</sup>

Preventive measures include cleaning hands often, using soap and water, or an alcohol-based hand rub, maintaining a safe distance from anyone who is coughing or sneezing, wearing a mask when physical distancing is not possible, not to touch eyes, nose or mouth, covering nose and mouth with bent elbow or a tissue when cough or sneeze, staying home if feel unwell, and if fever, cough and difficulty breathing, seek medical attention.<sup>11</sup>

The impact of COVID-19 vaccines on the pandemic will depend on several factors. These include the effectiveness of the vaccines; how quickly they are approved, manufactured, and delivered; the possible development of other variants and how many people get vaccinated. Whilst trials have shown several COVID-19 vaccines to have high levels of efficacy, like all other vaccines, COVID-19 vaccines will not be 100% effective.<sup>16</sup> WHO supports achieving 'herd immunity' through vaccination, not by allowing a disease to spread through any segment of the population, as this would result in unnecessary cases and deaths.

## References

1. Lauren M. and Sauer M.S. What Is Corona virus?, Retrieved from: <https://www.hopkinsmedicine.org/health/conditions-and-diseases/coronavirus>
2. Chaplin S. COVID-19: a brief history and treatments in development, 21 May 2020, Retrieved from: <https://doi.org/10.1002/psb.1843>
3. Anonymous. Background Information. Retrieved from: <https://www.aapmr.org/members-publications/covid-19/covid-19-background-information>
4. Williamson G. COVID-19 Epidemic Editorial, Open Nursing Journal, DOI: 10.2174/1874434602014010037, 2020, 14, 37-38
5. Cennimo DJ. Coronavirus Disease 2019 (COVID-19), August 18, 2021 Retrieved from: <https://www.medscape.com/answers/2500114-197403/where-did-the-coronavirus-outbreak-start>
6. Haider N, Ostrow PR, Osman AY, Arruda LB, Berry LM, Elton L, Thomson MJ, Manu DY, Ansumana R, Kapata N, Mboera L, Rushton J, Hugh TDM, Heymann DL, Zumla A and Kock RA. COVID-19-Zoonosis or Emerging Infectious Disease? Front. Public Health, 26 November, 2020, Retrieved from: <https://doi.org/10.3389/fpubh.2020.596944>
7. WHO Emergency Dashboard, Retrieved from: <https://covid19.who.int/region/searo/country/bd>
8. Rayan RA. Seasonal variation and COVID-19 infection pattern: A gap from evidence to reality, Curr Opin Environ Sci Health. 2021 Apr; 20: 100238. Published online 2021 Feb 20. doi: 10.1016/j.coesh.2021.100238
9. Anonymous. COVID-19: vulnerable and high risk groups, Retrieved from: <https://www.who.int/westernpacific/emergencies>
10. Anonymous. Coronavirus disease (COVID-19): How is it transmit, 13 December 2020, Retrieved from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-covid-19-how-is-it-transmitted?>
11. World Health Organization. Infection prevention and control during health care when COVID-19 is suspected, Retrieved from: [https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-\(ncov\)-infection-is-suspected-20200125](https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-(ncov)-infection-is-suspected-20200125)
12. Self-assessment Government of Bangladesh, Retrieved from: <https://www.google.com/search?q=signs+and+symptoms+of+covid+19&sxsrf=ALeKk>
13. Case fatality rate vs. Total confirmed COVID-19 deaths, Retrieved from: <https://ourworldindata.org/graphed>deaths-covid-19>
14. COVID-19 (corona virus): Long-term effects - Mayo Clinic, Retrieved from: <https://www.mayoclinic.org/in-depth>art-2049035>
15. COVID-19 & testing - Official WHO website - who. in, Retrieved from: <https://www.who.int/covid-19/test>
16. Safe and effective COVID-19 vaccines- (WHO) World Health Organization, Retrieved from: <https://www.who.int>diseases>novel-coronavirus-2019>

# Clinical Profile of COVID-19 Patients: Seeking Healthcare in Diabetic Association Medical College Hospital, Faridpur

Biswas M A<sup>1</sup>, Rahman A<sup>2</sup>, Haque M M<sup>3</sup>

## Abstract

**Background:** The novel corona virus has been identified as the cause of respiratory illness in Wuhan, Hubei Province, China, since December, 2019. It has spread almost all the countries and areas in world. The first corona virus disease detected (covid-19 case) in Dhaka, Bangladesh on 8 March, 2020. Gradually numbers were rising alarmingly.

**Objective:** This study was carried out to find out the age and sex distribution, clinical presentations, impact of co morbidities, complications and mortality of confirmed covid-19 patients attended in respiratory medicine outdoor of a teaching hospital in Faridpur, Dhaka, Bangladesh.

**Methods:** It was a cross-sectional study, included 1458 patient with respiratory problem seeking help in respiratory medicine outdoor from 8<sup>th</sup> June 2020 to 25<sup>th</sup> Dec 2020. Among them 580 clinically suspected patient advised RT PCR for COVID 19 and 283 were found COVID-19 positive. Then data were collected from confirm cases and checked & analyzed accordingly.

**Results:** Most of the COVID-19 confirms patients were aged between 26-35 years old, and most common symptoms were fever 83% followed by cough(64.0%), shortness of breath(47.0%) and sore throat(43.0%). Regarding co-morbidities about 48.0% had diabetes mellitus followed by hypertension 35.0%, ischemic heart disease 32.0% and bronchial asthma 29.0%. About 29.0% of the Covid-19 positive patients were admitted in hospitals. After recovery 45% of the admitted patient developed post COVID-19 symptoms.

**Conclusion:** Corona viruses cause mild respiratory symptoms most commonly fever, cough or runny nose to severe respiratory distress followed by death. Middle aged male were more affected but severity and mortality was higher in elderly, and in co- morbid patients, so management of this group should be done more cautiously. Most of the severe cases developed multiple post COVID-19 symptoms so regular follow-up should be given even after cure from COVID-19

**Keywords:** COVID-19, Co-morbidity, RT-PCR, Post COVID symptoms.

## Introduction

The world health organization declares covid-19 as a global health emergency. It is a single-stranded RNA virus also name as SARS-CoV-2 that causes severe respiratory distress syndrome.<sup>1</sup> A novel coronavirus 2019 first spark as an outbreak in china in December, 2019 caused severe epidemics around the world and followed by a pandemic. Though some corona patients reached a devastating epidemics outcome, others show mild to moderate respiratory infections, like the common cold<sup>2</sup>. Coronaviruses (covs) refer to a family of enveloped, positive-sense, single-stranded, and highly diverse RNA viruses.<sup>3</sup> There are four genera (alpha, beta, gamma, and

delta), among which  $\alpha$ -coronavirus and  $\beta$ -coronavirus attract more attention because of their ability to cross animal-human barriers and emerge to become major human pathogens.<sup>4</sup> The severe acute respiratory syndrome coronavirus SARS- CoV outbreak in 2002 and the Middle East respiratory syndrome coronavirus MERS- CoV outbreak in 2012, 2019-nCoV is the third coronavirus to emerge in the human population in the past two decades an emergence that has put global public health institutions on high alert.<sup>5</sup> Although the case-fatality rates for sars-cov and middle east respiratory syndrome coronavirus MERS-CoV are higher, SARS- CoV-2 is considerably more transmissible, most likely through sustained community and asymptomatic human-to-human spread by direct contact, respiratory droplets, or airborne transmission.<sup>6</sup> The patho-physiological features of severe covid-19 are dominated by an acute pneumonic process with extensive radiologic opacity and, on autopsy, diffuse alveolar damage, inflammatory infiltrates, and microvascular thrombosis.<sup>7</sup> In other severe viral pneumonias, such as highly pathogenic avian influenza,<sup>8</sup> sars,<sup>9</sup> and seasonal influenza,<sup>10</sup> the host immune response is thought to play a key role in the patho-physiology of organ failure. Inflammatory organ injury may occur in severe covid-19, with a subgroup of patients having markedly elevated

1. Dr. Muhammad Asaduzzaman Biswas  
Associate Professor and head, Department of Respiratory Medicine, DAMCH
2. Dr. Ashikur Rahman  
Medical Officer, Respiratory Medicine, DAMCH
3. Dr. Md. Marjanul Haque  
Medical Officer, Nephrology, DAMCH

## Correspondence to:

Dr. Muhammad Asaduzzaman Biswas, Associate Professor and head, Department of Respiratory Medicine, DAMCH  
Email: drasaddtd@gmail.com

levels of inflammatory markers, including C-reactive protein, ferritin, interleukin-1, and interleukin-6.<sup>11-13</sup>

The covid-19 pandemic in Bangladesh is part of the worldwide pandemic of coronavirus disease 2019 (covid-19) caused by severe acute respiratory syndrome coronavirus 2 SARS-CoV-2. The virus was confirmed to have spread to Bangladesh in March 2020. The first three known cases were reported on 8 March 2020 by the country's epidemiology institute, ICDDR . In order to protect the population, the government declared "lockdown" throughout the nation from 23 March and prepared some necessary steps to spread awareness to keep this syndrome away from them. Since then, the pandemic has spread day by day over the whole nation and the number of affected people has been increasing.

## Objectives

This study was carried out to find out the age and sex distribution, clinical presentations, impact of co morbidities, complications and mortality of confirmed covid-19 patients attended in respiratory medicine outdoor of a teaching hospital in Faridpur, Dhaka, Bangladesh

## Materials and Methods

In this cross-sectional study, primarily 1458 patients were included with respiratory problems and seeking help in respiratory medicine outdoor department from 8<sup>th</sup> June 2020 to 25<sup>th</sup> December 2020. Among them 580 clinically suspected patient advised RT PCR for COVID-19 and 283 were found COVID-19 positive. Data were collected from the COVID positive patients or their attendant by a structured questionnaire with proper consent. Demographic data, clinical data (symptoms, co-morbidities and their durations, etc.) were collected & compiled for analysis & were correlated with outcome. Patients were divided into two categories as severe or admitted patient and mild to moderate or non-admitted patients. Patients required hospital management and those developed post COVID complication were investigated.

## Results

**Table 1:** Distribution of the patients according to sex (n= 283)

Sex	Frequency	Percentage
Male	162	57.24
Female	121	42.76
<b>Total</b>	<b>283</b>	<b>100.0</b>

Table 1 shows, among the positive patients 162(57.24%) patients were male and other 121(42.76%) were female

**Table 2:** Distribution of the patients according to age (n=283)

Age group	Frequency	Percentage
18-25	56	20
26-35	90	32
36-45	42	15
46-55	50	18
56-65	25	09
66-75	12	04
75 and above	8	03
<b>Total</b>	<b>283</b>	<b>100.0</b>

Table 2 shows that most(32%) of the patients were aged between 26 to 35 years and between the ages of 18 to 25 years old were 20%

**Table 3:** Distribution of the patients according to presenting symptoms (n=283\*)

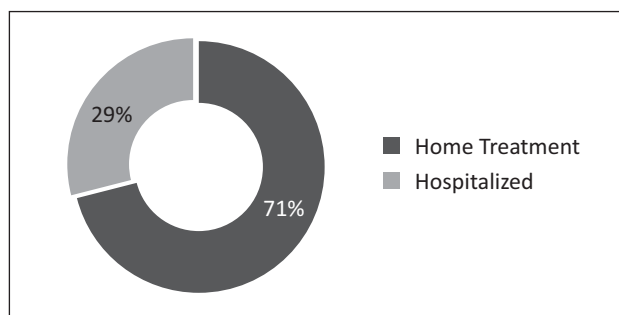
Symptoms	Frequency	Percentage
Fever	235	83
Cough	181	64
Shortness of breath	133	47
Sore throat	122	43
Anosmia	85	30
Asymptomatic	23	08
<b>* Multiple response</b>		

Table 3 shows that majority i.e 235(83%) of the patients present with fever followed by cough(64%), shortness of breath(47%), sore throat(43%), anosmia(30%) and about 8% were asymptomatic.

**Table 4:** Distribution of the patients according to their co-morbidities (n=283\*)

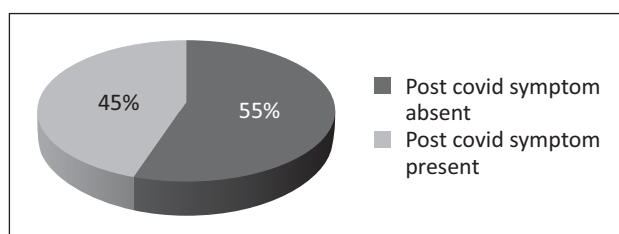
Co-morbidites	Frequency	Percentage
Diabetic mellitus	136	48
Cerebro vascular disease	54	19
Ischemic heart disease	91	32
Hypertension	99	35
Chronic kidney disease	14	5
Chronic liver disease	8	3
Bronchial asthma	82	29
No co morbidity	107	38
<b>* Multiple response</b>		

Table 4 shows that most 136(48%) patients had diabetes mellitus followed by hypertension(35%), ischemic heart disease(32%) and about 38% had no co-morbidities.



**Figure 1:** Distribution of the patients according to place of treatment

Figure 1 shows that most(71%) of the patients were treated from home and 29% were hospitalized.



**Figure 2:** Distribution of the patients according post COVID symptoms

Figure 2 shows that about 45% of the patients develop post COVID symptoms where 55% had no post COVID symptoms

## Discussion

Among 1458 patients with respiratory complaints seek help in respiratory outdoor initially 580 patients were clinically suspected and advised RT-PCR and 283 were found COVID-19 positive . The rate of affected people in this study is 49% which is higher. The main reason for this high rate of infection in this study may be it's a referral centre and we advised RT-PCR for COVID 19 only clinically suspected patient. Regarding sex distribution, in a study that included a total of 5700 patients admitted into 12 different hospitals of USA found 39.7% female and 60.3% male as Covid 19 positive.<sup>13</sup> In another study conducted in India males contribute to 66% of the total positive cases.<sup>12</sup> In a study in India, it is observed that women are half as likely to be infected by COVID-19 as men.<sup>14</sup> These above-mentioned results almost matches with this study result (male 57% and female 43%).

In present study, adult patients especially the economically productive age group i.e.26-35 were mostly affected (32%) and 18-25 (20%), 36-45 (15%) and 46-55 (18%) followed by elderly population like 56-65 (09%), 66-75 (04%) and 75 and above (03%). These findings were closely related to a review done by Dominic Cortis, where three studies were included. Two studies were from China by Zhang and Guan et al. and another one from South Korea by Korea Centers

for Disease Control and Prevention. The proportion of COVID-19 confirmed cases for youths (age group 0-14 year:) is lower in China (1.55%, 0.89%) than South Korea (4.04%). The predominant population affected in all three studies were 15-64year groups (76.93%, 83.98% in China and 78.60% in S.Korea) followed by elderly population (21.53%,15.13% in China and 17.36% in S.Korea).<sup>10</sup> A study conducted in China showed the age distribution for all patients where 61.5% were aged <60 years and the other cases were aged ≥60 years.<sup>11</sup> This is consistent with this study. A study conducted in India showed that 21-50 age group, contributes to the maximum proportion (60%) of the total cases followed by those below 20 years of age constituting nearly 13% of the cases.<sup>12</sup>

Most common symptoms among the positive patients are fever 83% followed by Cough 64%, Shortness of breath 47%.The less predominant symptoms were sore throat (43%), anosmia (30%) followed by with, headaches, chest pain, abdominal pain, diarrhea, vomiting, bleeding manifestation and psychosis in a few number of patients. There were 8% of asymptomatic patients. In a meta-analysis that included seven articles published from 24th Jan to 16th March, 2020 revealed that fever was the predominant symptom (88.8%) followed by dry Cough(68%) fatigue (33%), productive cough (28.5%), muscle pains (14.4%), diarrhea (4.4%), nausea or vomiting (4.1%), rhinorrhea (3.2%), chest and abdominal pain(0.15%).<sup>15</sup> Similarly, a study in a hospital of Wuhan, China found fever (98%), cough (76%), dyspnea (55%), myalgia or fatigue (44%), sputum production (28%), headache (8%), hemoptysis (5%), and diarrhoea (3%) as common symptoms.<sup>16</sup> In another meta-analysis, found similar result, where most prevalent clinical symptom was fever (91.3%), followed by cough (67.7%), fatigue (51.0%) and dyspnea (30.4%).<sup>17</sup> These above-mentioned studies closely matched with the result of this study.

Considering co-morbidity, Common co-morbid conditions found were as follows: DM (65%) HTN (48%), IHD (42%), followed by, CVD (54%), Bronchial asthma (29%), CKD (5%) CLD (3%).In a meta-analysis, as mentioned above revealed hypertension (15.8%) as the most common co morbidity followed by other cardiovascular and cerebro-vascular conditions ( 11.7%) , endocrine disorder primarily diabetes (9.4%), co-existing infection like HIV and Hepatitis B (1.5%),malignancy (1.5%), respiratory system disorder, e.g. COPD and others (1.4%), renal disorders (0.8%) and immunodeficiency states (0.01%).<sup>15</sup> Almost similar results were found in another retrospective, multicenter cohort study , where 48% patients had co morbidities, with hypertension being the most common (30%), followed by diabetes (19%) and coronary heart disease (8%).<sup>18</sup> In a population-based surveillance for laboratory-confirmed COVID-19-associated hospitalizations in the United States, among 1,482 patients,12% adult patients had one or more underlying conditions; the most common were hypertension (49.7%), obesity (48.3%), chronic lung disease (34.6%), diabetes mellitus (28.3%)and cardiovascular disease (27.8%).<sup>19</sup>



In this study it was found that, DM as the most common co morbidity followed by hypertension and not matched to other studies. May be due to being a diabetic specialized tertiary level hospital a great number of patient come here with diabetes and its complications. About 29% of the positive patients got hospitalized and 45% of the patients after recovery developed post covid symptoms mostly of shortness of breath, easy fatigability, joint pain, allergic problem, and generalized weakness.

## Conclusion

COVID 19 causes mild respiratory symptoms most commonly fever, cough or running nose to severe respiratory distress followed by death. Middle aged, male are more affected but more severe form in elderly, severity and mortality is high in elderly and co-morbid patient. After recovering from severe or admitted Covid-19 some patients developed post COVID-19 complications. This study doesn't represent the overall scenario of our country. So countrywide research may provide more accurate data regarding COVID-19.

## References

1. Sohrabi C, Alsafi Z, O'Neill N, et al. World Health Organization declares global emergency: a review of the 2019 novel coronavirus (COVID-19). *Int J Surg*. 2020; 76:71.
2. Shrikrushna et al. 2020. A review on corona virus (covid19). *WJPLS* 2020;6(4):109-115
3. <https://www.sciencedirect.com/science/article/pii/S2352396421001>.
4. <https://www.sciencedirect.com/topics/medicine-and-dentistry/severe-acute-respiratory-syndrome-coronavirus-2>.
5. Unhale SS, Ansar QB, Sanap S, Thakhre S, Wadatkar S, Bairagi R. A review on corona virus (covid-19). College of Pharmacy, Chikhli, Buldana (MS) India 443201.
6. Petersen et al., 2020; Day, 2020; Li et al., 2020b
7. Carsana L, Sonzogni A, Nasr A. Pulmonary post-mortem findings in a series of COVID-19 cases from northern Italy: a two-centre descriptive study. *Lancet Infect Dis* 2020; 20: 1135-40.
8. Jong MD, Simmons CP, Thanh TT. Fatal outcome of human influenza A(H5N1) is associated with high viral load and hypercytokinemia. *Nat Med* 2006; 12:1203-7.
9. Wong CK, Lam CWK, Wu AKL. Plasma inflammatory cytokines and chemokines in severe acute respiratory syndrome. *Clin Exp Immunol* 2004; 136:95-103.
10. Baillie JK, Digard P. Influenza time to target the host? *N Engl J Med* 2013; 369:191-3.
11. Ruan Q, Yang K, Wang W, Jiang L, Song J. Clinical predictors of mortality due to COVID-19 based on an analysis of data of 150 patients from Wuhan, China. *Intensive Care Med* 2020; 46: 846-8.
12. Huang C, Wang Y, Li X. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet* 2020; 395: 497-506.
13. Moore JB, June CH. Cytokine release syndrome in severe COVID-19. *Science* 2020; 368: 473-4.
14. Liu Y, Mao B, Liang S, Yang JW, Lu HW, Chai YH, et al. Association between age and clinical characteristics and outcomes of COVID-19. *Eur Respir J*. 2020 May; 55(5):2001112. doi:10.1183/13993003.01112-2020.
15. Kulkarni SV, Chauhan H. COVID-19 in Different Age Groups of Children: Initial Impression from Integrated Disease Surveillance Programme (IDSP) under National Centre for Disease Control (NCDC). *Indian J Pediatr*. 2020 Jul; 87:674-5. <https://doi.org/10.1007/s12098-020-03457y>.
16. Richardson S, Hirsch JS, Narasimhan M, Crawford JM, Mc Ginn T, Davidson KW, et al. Presenting Characteristics, Comorbidities, and Outcomes Among 5700 Patients Hospitalized With COVID-19 in the New York City Area. *JAMA*. 2020; 323(20):2052-59. doi:10.1001/jama.2020.6775.
17. Gupta S. The age and sex distribution of COVID-19 cases and fatalities in India. medRxiv 187953 [preprint]. 2020 [Jul 16]. Available from doi: <https://doi.org/10.1101/2020.07.14.20153957>.
18. Paudel SS. A meta-analysis of 2019 novel coronavirus patient clinical characteristics and comorbidities. Research Square 148580 [preprint]. 2020 [Apr 08]. Available from doi: 10.21203/rs.3.rs-21831/v1.
19. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet*. 2020 Feb 15; 395 (10223):497-506. [https://doi.org/10.1016/S0140-6736\(20\)30183-5](https://doi.org/10.1016/S0140-6736(20)30183-5).

# Dementia and Co-morbid Risk Factors among Elderly: A Comparative Cross Sectional Study in Dhaka City

Kabir M A<sup>1</sup>, Islam T B<sup>2</sup>, Akhiruzzaman<sup>3</sup>, Ferdous S<sup>4</sup>, Akhtar S<sup>5</sup>, Sarker F<sup>6</sup>, Ahsanuzzaman A K M<sup>7</sup>

## Abstract

**Background:** Dementia is rapidly becoming the major public health problem in Bangladesh, as the prevalence of dementia is rising day by day. Therefore, risk factors assessment and early diagnosis of dementia is important to minimize this burden of the disease.

**Objectives:** To determine the co-morbid risk factors of dementia among the elderly people and relationship of age and sex with dementia.

**Methods:** This comparative cross sectional study was carried out in two purposively selected hospitals in Dhaka city i.e. Institute of Research and Rehabilitation for Diabetes, Endocrine and Metabolic Disorder (BIRDEM), National Institute of Neuroscience and Dementia Care Project of Sir William Beveridge Foundation, Dhaka during the period of one year. Sampling technique was purposive in nature to select 120 respondents in which 60 were dementia patients and rest 60 were healthy control without dementia for comparison. All the respondents were more than 60 years of age and willing to participate in this study. A pretested semi-structured questionnaire and a check list were used to collect data from the respondents. Selected investigation findings were collected through record review.

**Results:** In this study mean age of the dementia patients was  $73.10 \pm 4.93$  years. Dementia was more prevalent among males (60.0%) and whose age was more than 70 years (71.67%). Furthermore, some medical illness such as diabetes mellitus ( $p < 0.01$ ), hypertension ( $p < 0.01$ ), liver disease ( $p < 0.01$ ) and stroke ( $p < 0.01$ ) were significantly associated with dementia

**Conclusion:** Diabetes mellitus, hypertension, liver disease and stroke were the predominant risk factors among the respondents having dementia in elderly people under study.

**Keywords:** Dementia, Risk factors, Elderly people.

1. Dr. Md. Asiul Kabir  
Associate Professor, Department of Biochemistry  
Diabetic Association Medical College, Faridpur.
2. Dr. Tahnika Bintay Islam  
Lecturer, Department of Biochemistry  
Diabetic Association Medical College, Faridpur.
3. Dr. Akhiruzzaman  
Assistant Professor, Department of Community Medicine  
Diabetic Association Medical College, Faridpur.
4. Dr. Samira Ferdous  
Assistant Professor, Department of Biochemistry  
East West Medical College, Dhaka.
5. Dr. Shaireen Akhtar  
Assistant Professor, Department of Biochemistry  
Khulna Medical College, Khulna
6. Dr. Fatema Sarker  
Assistant Professor, Department of Biochemistry  
Dr. Sirajul Islam Medical College, Dhaka
7. Dr. AKM Ahsanuzzaman  
Lecturer, Department of Biochemistry, MH Samorita Hospital  
and Medical College, Tejgaon, Dhaka.

## Correspondence to:

Dr. Md. Asiul Kabir  
Associate Professor, Department of Biochemistry  
Diabetic Association Medical College, Faridpur.  
Email: akasiul99@gmail.com

## Introduction

Dementia is defined by Gale encyclopedia (2008) "is a loss of mental ability severe enough to interfere with normal activities of daily living, lasting more than six months, not present since birth, and not associated with a loss or alteration of consciousness". It is most common among the adults aged above 65 however it can also be seen in people under the age of 65 and then it's known as "early onset dementia".<sup>1</sup>

There were 7.7 million new cases of dementia each year, implying that there is a new case of dementia somewhere in the world every four seconds.<sup>2</sup> The case rates increasing significantly with age, dementia affects approximately 5% - 8% of peoples over age 65, 15%-20% of peoples over age 75, and 25%-50% of peoples over age 85. Alzheimer disease is the most common dementia, accounting for 50% -75% of the total, with a greater proportion in the higher age ranges.<sup>3</sup>

It is estimated that there are about 4,60,000 people with dementia in Bangladesh in 2015 while the number will rise 8,34,000 in 2030 and 21,93,000 in 2050 respectively.<sup>4</sup> WHO has given first line priority for dementia treatment and care.

Alzheimer's Association identified the main type of dementia as Alzheimer's disease (AD), vascular dementia,

dementia with Lewy bodies (DLB), fronto-temporal dementia and mixed dementia.<sup>5</sup> Several studies suggested that patient with dementia have short life expectancy as Alzheimer's and other form of dementia are more common among older people between the ages of 65 to 85 years.<sup>6</sup> In dementia the affected neurons in the basal forebrain amygdala, hippocampus and cerebral cortex, all of which correspond to clinical deficit in learning, memory, reasoning, behavior and emotional control.<sup>7</sup>

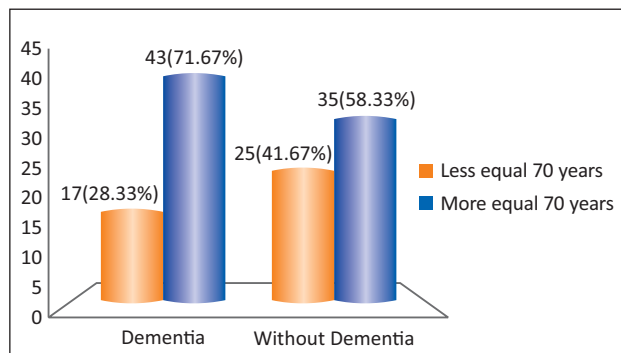
In an epidemiological study findings found that in 2001, 60.1% of all people with dementia were living in developing countries; this proportion is expected to rise to 71.2% by 2040 which is alarming for these countries as well Bangladesh. Aging demographic transition is proceeding rapidly especially in China, India, and Latin America, where dementia is rapidly becoming the major public health problem.<sup>8-9</sup> But there was scarcity or lack of information in this prospect in context of Bangladesh. Therefore, this study was a modest attempt to determine the co-morbid risk factors associated with dementia among the elderly people in Dhaka city.

## Materials and Methods

This comparative cross sectional study was carried out in two purposively selected hospitals in Dhaka city i.e. Institute of Research and Rehabilitation for Diabetes, Endocrine and Metabolic Disorder (BIRDEM), National Institute of Neuroscience and Dementia Care Project of Sir William Beveridge Foundation, Dhaka during the period of one year. Purposive sampling technique was used to select 120 respondents in which 60 were dementia patients and rest 60 were healthy control without dementia for comparison. All the respondents were more than 60 years of age and willing to participate in this study. A pretested semi-structured questionnaire and a check list were used to collect data from the respondents. Selected investigation findings were collected through record review. After that data were sorted, cleaned and analyzed by using SPSS software (19<sup>th</sup> version). During the inferential statistics p value <0.05 was considered as significant statistics.

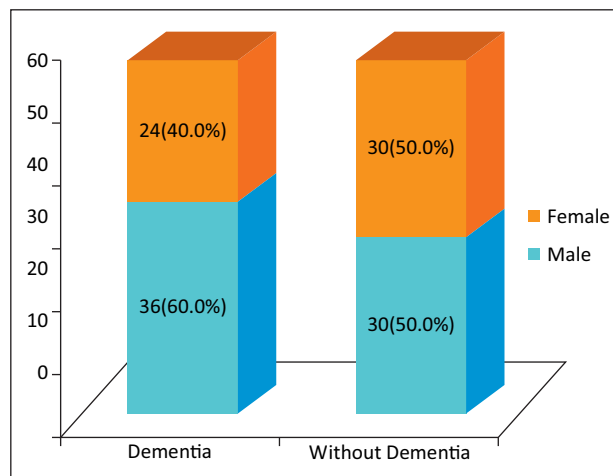
## Results

Based on findings the results are presented in the form of tables and graphs as follows:



**Figure 1:** Distribution of the respondents according to age

Figure 1 shows that among the dementia patient most(71.73%) were more than 70 years age group and 17(28.33%) were less equal 70 years age group. On the other hand in without dementia patients only 58.33% were more than 70 years age group.



**Figure 2:** Distribution of the respondents according to sex

Figure 2 shows that among the dementia patients 36(60.0%) were male and 24(40.0%) were female. Without dementia patients male and female were equal in number.

**Table 1:** Distribution of the respondents according to other comorbid conditions

Co-morbid conditions	Dementia n=60 f(%)	Without Dementia n=60 f(%)
Diabetes mellitus	35 (58.3)	12 (24.0)
Hypertension	33 (55.0)	10 (16.7)
Liver disease	9 (15.0)	0 (0.0)
Stroke	26 (43.3)	0 (0.0)

Table 1 shows that 35(58.3%) dementia patients had Diabetes mellitus, 33(55.0%) had hypertension whereas only 12(24.0%) had Diabetes mellitus and 10(16.7%) had hypertension among without dementia respondents.

**Table 2:** Relationship of different risk factors with dementia and respondents without dementia.

Different risk factors	Groups		p value
	Dementia Mean $\pm$ SD	Without Dementia Mean $\pm$ SD	
Age (year)	73.10 $\pm$ 4.93	71.80 $\pm$ 5.32	0.168
BMI (Kg/m <sup>2</sup> )	24.29 $\pm$ 3.80	23.68 $\pm$ 2.56	0.310
FBG (mmol/l)	7.75 $\pm$ 2.49	6.21 $\pm$ 1.23	0.001
Systolic BP (mmHg)	124 $\pm$ 26	121 $\pm$ 16	0.018
Diastolic BP (mmHg)	83 $\pm$ 10	80 $\pm$ 11	0.200

\*Unpaired t test was done to measure the level of significance



Table 2 shows the unpaired t test where Fasting blood glucose ( $p<0.001$ ) and systolic blood pressure ( $p<0.05$ ) is significantly associated with dementia

**Table 3:** Relationship of age with dementia and respondents without dementia

Age (year)	Groups		$\chi^2$	p value
	Dementia n=60 f (%)	Without Dementia n=60 f (%)		
≤70	17 (28.3)	25 (41.7)		
>70	43 (71.7)	35 (58.3)	2.344	0.126
<b>Total</b>	<b>60 (100.0)</b>	<b>60 (100.0)</b>		

Chi-square test was done to measure the level of significance.

Table-3 shows the chi square test where 43(71.7%) respondents of more than 70 years age group had dementia and only 17(28.3%) respondents of ≤70 years age group had dementia but the difference is not statistically significant ( $p>0.05$ )

**Table 4:** Relationship of sex with dementia and respondents without dementia

Gender	Groups		$\chi^2$	p value
	Dementia n=60 f (%)	Without dementia n=60 f (%)		
Male	36 (60.0)	30 (50.0)	1.212	0.271
Female	24 (40.0)	30 (50.0)		
<b>Total</b>	<b>60 (100.0)</b>	<b>60 (100.0)</b>		

Chi-square test was done to measure the level of significance

Table 4 shows the chi square test where male (60.0%) were more sufferer from dementia than female (40.0%) but the difference is not statistically significant ( $p>0.05$ )

**Table 5:** Relationship of co-morbid conditions of respondents with dementia and without dementia

Co-morbid conditions	Group		p value
	Dementia n=60 f (%)	Without Dementia n=60 f (%)	
Diabetes mellitus	35 (58.3)	12 (24.0)	<0.001
Hypertension	33 (55.0)	10 (16.7)	<0.001
Liver disease	9 (15.0)	0 (0.0)	<0.002
Stroke	26 (43.3)	0 (0.0)	<0.001

Chi-square test was done to measure the level of significance

Table5 shows the Chi-square test where different medical condition such as diabetes mellitus ( $p<0.01$ ), hypertension ( $p<0.01$ ), liver disease ( $p<0.01$ ) and stroke ( $p<0.01$ ) are significantly related with dementia.

## Discussion

This study revealed that mean ( $\pm$ SD) age of dementia patients was 73.10( $\pm$ 4.93) years with the age range of 62 to 84 years. This result is consistent with some other study done in the world. The prevalence of dementia rapidly increases from about 2-3% among those aged 70–75 years to 20–25% among those aged 85 years or more.<sup>9</sup>

In this study subjects with age >70 years had more chance of dementia than the study subjects with age ≤ 70years which indicated that higher the age, higher the chance of dementia. In a good number of studies found that age is a strong risk factor.<sup>10-11</sup>

In context of history of medical illness, Diabetes mellitus was significantly higher in dementia patients than without dementia group. Diabetes mellitus was present in 35(58.3%) dementia patients. In a systemic review as well as in a cohort study, hyperinsulinaemia and type-2 diabetes are associated with greater risk of cognitive impairment and dementia.<sup>12-13</sup>

Hypertension was significantly higher in dementia patients than without dementia group. Hypertension was present in 33 (55.0%) dementia patients. Similarly, Stroke was significantly higher in dementia patients (43.30%) than control group (0.0%). On the other hand, developing societies where hypertension is the major problem seem to have proportionally high prevalence of dementia.<sup>14</sup> In a longitudinal study also found that hypertension is associated with development of cognitive impairment and dementia.<sup>15</sup>

## Conclusion

As current study, it might be concluded that increase age, diabetes mellitus, hypertension, liver disease and stroke were considered as important co-morbid risk factor for respondents under study in Dhaka city.

## Limitations

- The study was done in limited time of span, respondents were collected from few center hence it may not represent the whole population of the country.
- The sample size was small.

## Conflict of interest

There is no conflict of interest with any organization or groups

## Acknowledgements

The authors are thankful to the department of Medicine in BIRDEM General Hospital, National Institute of Neuroscience and Dementia Care Project of Sir William Beveridge Foundation, Dhaka, Bangladesh.

## References

1. Fadil H, Borazanci A, Ait Ben Haddou E, Yahyoui M, Korniyuchuk E, Jafte S L, and Minagar A. Early onset Dementia. *International Review of Neurology*. 2009; 84: 245-262.
2. Duthey B. Background paper 6.11: Alzheimer disease and other dementias. *A Public Health Approach to Innovation*. 2013; 20:1-74.
3. Braak H, Del Tredici K. Where, when, and in what form does sporadic Alzheimer's disease begin?. *Current opinion in neurology*. 2012; 1;25(6): 708-714.
4. Alzheimer Society of Bangladesh. Dementia statistics. Available at: <http://alzheimersbd.com/dementia-statistics/> [Accessed on: 13/06/2017]
5. Alzheimer's Association. Types of Dementia. 2017. Available at: <http://www.alz.org/dementia/types-of-dementia.asp> [Accessed on 01/05/2017].
6. Lee M, and Codosh J. Dementia and life expectancy. What do we know? *Journal of American Medical Director Association*. 2017; 10 (7): 466-471.
7. Faukler JD, Baartleft J, Hicks P. Alzheimer's disease. In Di Piro, JT, Talbart RL, Yee GC, Matzke GR, Wells BG. *Pharmacotherapy, A pathophysiologic approach*, 6<sup>th</sup> ed. China, McGraw-Hill; 2005.
8. Kalaria RN, Maestre GE, Arizaga R. Alzheimer's disease and vascular dementia in developing countries: prevalence, management, and risk factors. *The Lancet Neurology*. 2008; 7(9): 812-826.
9. Ferri CP, Prince M, Brayne C, Brodaty H, Fratiglioni L, Ganguli M. et al. Global prevalence of dementia: a Delphi consensus study. *The Lancet*. 2005; 366(9503): 2112-2117.
10. Dong MJ, Peng B, Lin XT, Zhao J, Zhou YR, Wang RH. The prevalence of dementia in the People's Republic of China: a systematic analysis of 1980–2004 studies *Age Ageing*, 2007;36: 619-624.
11. Farrag A, Farwiz HM, Khedr EH, Mahfouz RM, Omran SM. Prevalence of Alzheimer's disease and other dementing disorders: Assiut-Upper Egypt study. *Dement Geriatr Cong Disord*. 1998; 9: 323-328.
12. Luchsinger JA, Tang MX, Stern Y. Diabetes mellitus and risk of Alzheimer's disease and dementia with stroke in a multiethnic cohort. *Am J Epidemiol*. 2001; 154: 635-641.
13. Biessels GJ, Staekenborg S, Brunner E, Brayne C, Scheltens P. Risk of dementia in diabetes mellitus: a systematic review. *Lancet Neurol*. 2006;5: 64-74.
14. Vita AJ, Terry RB, Hubert HB, and Fries JF. Aging, health risks, and cumulative disability. *The New England Journal of Medicine*. 1998; 338(15): 1035-1041.
15. Skoog I, Lernfelt B, Landahl S. 15-year longitudinal study of blood pressure and dementia. 1996; *Lancet*, 347: 1141-1145.

# Nodule Size and Fine Needle Aspiration Cytology (FNAC): A Suitable Choice in Early Diagnosis of Thyroid Malignancy

Ahmed Q S U<sup>1</sup>, Yasmin S<sup>2</sup>

## Abstract

**Background:** Thyroid nodules have been found a very common clinical problem and the size of the nodules including FNAC considered a choice of diagnosis. This study was an attempt to explore the options to be considered suitable in early diagnosis of said malignancy toward improved quality of life.

**Objective:** This study is designed to explore thyroid examination features, nodule size with type and sub-type of cancer, nodule size and FNAC findings including histopathological diagnosis of thyroid lesions in particular.

**Methods:** This was a descriptive cross sectional study conducted from November 2015 to April 2016 in Combined Military Hospital Dhaka and Dhaka Medical College Hospital. 100 patients who underwent thyroidectomy for nodular goiters were included in this study. Nodule size was measured by USG and fine needle aspiration of nodules performed.

**Results:** Out of 100 evaluated nodules, 19 (19%) were cancerous, demonstrating no graded increase in risk beyond the 2 cm threshold. When malignant, the proportion of papillary carcinoma decreased (nodules, 1.0-1.9 cm, 100%, of cases; 2.0-2.9 cm, 100%; 3.0-3.9 cm, 80%;  $\geq 4$  cm, 0%) [ $p < 0.02$ ], while follicular carcinoma increased (1.0-1.9 cm, 0%; 2.0-2.9 cm, 0%; 3.0-3.9 cm, 20%;  $\geq 4$  cm, 66.7%) [ $p < 0.02$ ] as nodules enlarged.

**Conclusion:** FNAC findings have found suitable for early diagnosis and prognosis of different types of thyroid malignancies. However, increasing nodule size, large, hard and fixed nodule, palpable lymph nodes, hoarseness of voice, as clinical parameters may provide clues for a suspected malignancy. A mass awareness program would have been beneficial for the population towards early diagnosis and intervention in improving quality of life.

**Keywords:** Thyroid malignancy, Nodule size, FNAC

## Introduction

Thyroid nodules are one of the commonest endocrine problems in the world. In general, a nodule of 1 cm diameter is detectable by palpation. A discrete swelling in an otherwise impalpable gland is termed isolated or solitary, whereas the preferred term is dominant for a similar swelling in a gland with clinical evidence of generalized abnormality. About 70% of discrete thyroid swellings are clinically isolated and about 30% are dominant<sup>1</sup>. Thyroid gland and its enlargement were known since the time of Hippocrates. The thyroid gland was described by Galen in 160-200 AD and more completely by Vesalius in 1543 (the Fabrica). It was named as such by Thomas Wharton in 1946 presumable because of its association with thyroid cartilage (Greek- *thyreoeides*,

shield-shaped).<sup>2</sup> The gland was previously referred to as the 'laryngeal gland'. First successful thyroidectomy operation, on record, appears to have been performed in 952 AD by Albucasis (AD 936-1013), the Moorish physician and surgeon of Andalusia 29. Thyroid nodule could be benign or malignant. The importance of solitary thyroid nodule lies in the significant risk of malignancy compared with other thyroid swelling. The incidence of thyroid malignancy within a clinically solitary thyroid nodule varied widely in the literature i.e. from 10- 23.7%.<sup>3</sup> Iodine deficiency is the main cause of goiter development in Bangladesh.<sup>4</sup> In Bangladesh, the highest prevalence rate of goiter is in the district of Rangpur and Jamalpur and the range varies from 21-30%.<sup>5</sup> It is postulated that goitrous thyroid is a precursor lesion to the development of malignant thyroid disease. The world wide incidence of malignancy in goitrous thyroid is about 10%.<sup>6</sup> Detail history and physical examination alone is often not enough practically to make a proper diagnosis. Common employed diagnostic tools regarding final diagnosis and subsequent management are thyroid hormone assay, thyroid scan, ultrasonography (USG) and fine needle aspiration cytology (FNAC). Serum TSH measurement is the initial step to exclude hyper or hypo functioning nodule. The thyroid scan is helpful in determining whether a solid nodule is functioning (warm or hot) or non functioning (cold). Hot solitary nodules are rarely malignant but there is about 20%

1. Lt col Quazi Sabran Uddin Ahmed  
Classified Surgical Specialist, Border Guard Hospital, Dhaka.

2. Dr. Suraiya Yasmin  
Assistant Professor and Head, Department of Pharmacology  
Khulna City Medical College.

## Correspondence to:

Lt col Quazi Sabran Uddin Ahmed  
Classified Surgical Specialist, Border Guard Hospital,  
Dhaka.  
E-mail: zunairasabrin13@gmail.com

chance of malignancy in cold nodules<sup>1</sup>. USG can differentiate between solid and cystic lesions but unfortunately there are no sonographic criteria at present that reliably distinguish benign from malignant nodule.<sup>7</sup> But sonographic findings of microcalcifications, hypoechogenicity, absence of a halo, and irregular nodular margins all increase cancer risk.<sup>8</sup> A cost-effective screening test for the evaluation of thyroid nodules, fine-needle aspiration cytology (FNAC) is highly sensitive and specific in the diagnosis of thyroid cancer, with an accuracy approaching up to 98%.<sup>9-11</sup> However, FNAC is associated with a 0-7% false positive and 1-11% false negative rate.<sup>12</sup> FNAC is also unable to distinguish a benign follicular or Hurthle cell carcinoma, and persistently nondiagnostic results account for up to 20% of FNACs.<sup>13</sup> Tumour size is known to be an important prognostic factor in patients with malignant disease. Patient with differentiated thyroid cancer  $\geq 4$  cm in size have a higher risk of recurrence and mortality and, as a result, total thyroidectomy is recommended. The significance of nodule size in initial evaluation and management of patients is unclear. Some authors have reported that increased nodule size confers an increased risk of malignancy.<sup>14-21</sup> Other authors have not found nodule size to be an independent predictor of malignancy.<sup>22-25</sup> FNAC is now well established as first line diagnostic test and confers several advantages including the prevention of unnecessary thyroidectomies and the detection of earlier-stage thyroid cancer.<sup>26-28</sup>

## Materials and Methods

This was a descriptive cross sectional study conducted from November 2015 to April 2016 in Combined Military Hospital Dhaka and Dhaka Medical College Hospital. All hospital admitted Patients with nodular goiter cases treated surgically during the study period were selected purposively. Total 100 cases were taken for the study where 67 from Combined Military Hospital Dhaka and 33 from Dhaka Medical College Hospital. Cases having thyroid nodule less than 1 cm and not agreed were excluded. Ethical issues were dealt adequate. Nodule size was measured by Ultrasonography. Solitary nodules or dominant nodules in multi nodular goiter greater than 1 were biopsied. FNAC slides were evaluated by Cytopathologist of Armed Forces Institute of Pathology. After thyroidectomy, histopathological data were used to estimate the actual nodule size and predictive role of FNAC was evaluated in comparison with histopathology. Data were recorded in data collection sheet and analyzed by SPSS (Statistical Package for Social Science) version 16 for windows.

## Results

**Table 1:** Distribution of cases by age and sex (n=100)

Features	Benign (n=81)	Malignant (n=19)	P value
Age	42.0 $\pm$ 11.13	39.3 $\pm$ 11.37	0.348
Sex - M:F (24:76) Ratio -1:3.2	18:63 1:3.5	6:13 1:2.16	0.390

P value reached from Chi-square test, \*=significant

Table 1 illustrates that the age of the patients were ranged from 21 to 69 years and mean age was 42  $\pm$  11.3 and 39.3  $\pm$  11.37 years for benign and malignant cases. Sex incidence showed female predominance.

**Table 2:** Distribution of cases by thyroid examination features (n=100)

Features	Benign (n=81)	Malignant (n=19)	P value
Thyroid function status			
Euthyroid	66(81.5%)	14(73.7%)	0.876
Hyperthyroid	7(8.5%)	2(10.5%)	
Hypothyroid	3(3.7%)	1(5.3%)	
Neck swelling	81(100%)	19 (100%)	-
Mean nodule size (cm)	2.24( $\pm$ .83)	2.84( $\pm$ .99)	*0.007
Nodule character			
Solid	51(63%)	11(58%)	0.882
Cystic	9(11%)	2(10.5%)	
Mixed	21(26%)	6(31.5%)	

P value reached from Chi-square test, \*=significant

Table 2 showed that majority of the patients were in euthyroid state. Mean nodule size was larger for malignant versus benign nodules (2.8  $\pm$  .99 cm vs 2.24  $\pm$  .83 cm). Clinically 03 (3%) patients had cervical lymphadenopathy. Out of 100 nodules 62 (62%) were solid, 11 (11%) cystic and 27 (27%) mixed in nature.

**Table 3:** Distribution of cases by size of nodule and type of cancer (n=100)

Nodule size	Total nodule	Benign type	Malignant type	P value
1.0-1.9 cm	60	54 (90.0%)	6 (10.0%)	0.004*
$\geq 2$ cm	40	27(67.5%)	13(32.5%)	
	(n=40)			
2.0-2.9 cm	23	17 (73.9%)	6 (26.1%)	0.528 <sup>ns</sup>
3.0-3.9 cm	11	6 (54.5%)	5 (45.5%)	
$\geq 4$ cm	6	4 (66.7%)	2 (33.3%)	

P value reached from Chi-square test, \*=significant, ns=Not significant.

Table 3 illustrated that Thyroid nodule 1.0-1.9 cm in diameter



provides base line cancer risk (10%). The overall prevalence of cancer in nodules 2.0 to 2.9 cm was 26.0%, in nodules 3.0 to 3.9 cm was 45.5% and in nodules  $\geq 4$  cm was 33.3%.

**Table 4:** Distribution of cases by nodule size and thyroid cancer subtype (n=19)

Nodule size	Total	Type of thyroid carcinoma			P value
		Papillary	Follicular	Other/anaplastic	
1.0-1.9 cm	6	6(100.0%)	0	0	0.02*
2.0-2.9 cm	6	6(100.0%)	0	0	
3.0-3.9 cm	5	3(60.0%)	1(20.0%)	1(20.0%)	
>4 cm	2	0	2(100%)	0	
Total	19	15(78.9%)	3(15.8%)	1(5.3%)	

P value reached from Chi-square test, \*=significant

Table 4 showed that increased nodule size was associated with a lower proportion of papillary carcinoma ( $p < 0.02$ ). In contrast, the proportion of follicular or other carcinoma increased as diameter increased.

**Table 5:** Distribution of cases by nodule size and FNAC (n=100)

FNAC findings	Thyroid nodule size, cm				Total no (%)
	1.0-1.9	2.0-2.9	3.0-3.9	$\geq 4.0$	
Non malignant/Benign	52	10	03	03	68(68%)
Cellular follicular lesion	02	05	03	02	12(12%)
Suspicious for malignancy	02	03	03	01	09(9%)
Malignant	04	05	02	00	11(11%)
Total	60	23	11	06	100

Table 5 showed that 68 (68%) were found non malignant/benign, 12 (12%) cellular follicular lesion, 11 (11%) malignant and 09 (9%) suspicious.

**Table 6:** Distribution of cases by nodule size and histopathological diagnosis (n=100)

Histopathological diagnosis		Thyroid nodule size, cm				Total N=100 (%)
		1.0-1.9	2.0-2.9	3.0-3.9	$\geq 4.0$	
Benign n=81	Nodular goiter	49	09	02	03	63(77.8%)
	Thyroiditis	03	03	01	01	08(9.9%)
	Follicular adenoma	02	05	03	0	10(12.3%)
Malignant n=19	Papillary	06	06	03	00	15(78.9%)
	Follicular	00	00	01	02	03(15.8%)
	Anaplastic	00	00	01	00	01(5.3%)
Total		60	23	11	06	100

Table 6 showed that 81 (81%) patients were benign. Among them 63 (77.8%) had nodular goiter, 10 (12.3%) follicular adenoma, and 08 (9.9%) thyroiditis. The remaining 19 (19%) were diagnosed as malignant. About 15 (78.9%) patient had papillary carcinoma, 3 (15.8%) follicular carcinoma and 1 (5.3%) anaplastic carcinoma.

## Discussion

This analysis of 100 cases with clinically relevant thyroid nodules provides the assessment of thyroid nodule size and FNAC findings for malignancy. This study also reflects thyroid examination features, nodule size with type and sub-type of cancer, nodule size and FNAC findings including histopathological diagnosis of thyroid lesions.

The age incidence of thyroid swelling ranges from 21 to 69 years and mean age  $42 \pm 11.13$  and  $39.3 \pm 11.37$  for benign and malignant cases respectively. Male to female ratio is approximately 1:3.2. Thyroid disease is more common in female than male including both benign nodule and malignancy. In these series peak incidence of the disease and male to female ratio is comparable to other studies.<sup>29,30,31</sup>

The study cases presented with neck swelling. Among 19 malignancy 03 (15.8%) have cervical lymphadenopathy ( $p < .005$ ). The mean nodule size was larger for malignant versus benign nodules ( $2.8 \pm .99$  cm vs  $2.24 \pm .83$  cm) ( $p < .007$ ). The likelihood of malignancy increases with larger nodule and presence of cervical lymph node. This statement supports the work of Guido M Sclabas, et al and Alexopoulou O, et al.<sup>14,18</sup>

However thyroid nodules 1.0 to 1.9 cm in diameter provided baseline cancer risk (10.0% risk of cancer). The overall prevalence of cancer in nodules 2.0 to 2.9 cm was 26%; in nodules 3.0 to 3.9 cm, 45.5%; and in nodules  $\geq 4.0$  cm, 33.3%. The primary influence of this association was the low malignancy rate in nodules 1.0 to 1.9 cm. This was statistically significant ( $P < .004$ ). When comparing nodules 2.0 to 2.9 cm, 3.0 to 3.9 cm, or  $\geq 4.0$  cm, no difference in malignancy rate was demonstrated ( $P < .528$ ). This suggests a possible threshold effect. These results are closer to the results of McHenry C R et al and Kamran S C et al where they were unable to demonstrate a significant relationship between increasing nodule size with risk of thyroid malignancy.<sup>32</sup>

In this study nodule size was compared with the type and distribution of thyroid malignancy, discordance was detected. Increasing nodule size was associated with a lower proportion of papillary carcinoma in contrast with the proportion of follicular or other carcinomas, increased linearly as diameter increased ( $P < .02$ ). The proportion of papillary carcinoma decreased (nodules, 1.0-1.9 cm, 100%, of cases; 2.0-2.9 cm, 100%; 3.0-3.9 cm, 80%;  $> 4$ cm, 0%,) while follicular carcinoma increased (1.0-1.9 cm, 0%; 2.0-2.9 cm, 0%; 3.0-3.9 cm, 33.3%;  $\geq 4$  cm, 66.7%) as nodules enlarged, which correlates well with the work of Kamran S C et al and McHenry C R et al.<sup>32,33</sup>

Results of fine needle aspiration cytology were negative for malignancy in 80 (80%) cases, positive for malignancy in 11 (11%) cases and in 09 (09%) cases were suspicious, which are comparable to the works of others<sup>29,30,31</sup>. In this series histological diagnosis was available in all the cases. Total 81 (81%) patients were benign. Among them 63 (77.8%) were histologically proved as nodular goitre, 10 (12.3%) follicular adenoma, 08 (9.9%) thyroiditis and remaining 19 (19%) were malignant. This result is close to the observation of M.K Islam et al and Kabir A D M<sup>29,30</sup>.

## Conclusion

The identification of options to be considered suitable in early diagnosis of thyroid malignancies are of great importance in guiding therapeutic strategy, especially because thyroid nodules are becoming more and more prevalent. FNAC findings have found suitable for early diagnosis and prognosis of different types of thyroid malignancies yet increasing nodule size, large, hard and fixed nodule, palpable lymph nodes, hoarseness of voice, as clinical parameters may provide clues for a suspected malignancy as well. A mass awareness program among high risk population about the consequence of thyroid malignancy may have been considered to enhance their knowledge about this cancer and its prognosis. Measures can be taken towards its early detection and intervention in order to improve the quality of life in deed.

## References

1. Krukowski Z H. The thyroid and parathyroid glands. In : William NS, Balstrode CJK, O'Connell , Bailey & Love's Short Parctice of Sugery. 26th Edition. Arnold, London, 2013, 750.
2. Schwartz S L, Shires G T, Spencer F. Thyroid nodule. In: Schwartz S L, Shires G T, Spencer F, eds. Principles of Surgery. 6<sup>th</sup> edition. McGraw-Hill Incl: USA. 2005. 1629-1633.
3. Watkinson JC, Gaze MN, Wilson JA. 2000. Tumours of thyroid and parathyroid gland, Stell and Maran's Head neck Surgery, 4<sup>th</sup> edn. Butterworth Heinemann, 2000 : 458-484.
4. Ahmed KU, Siddqul SM, Chowdhury MH, Ahmed SN. Endemic goitre : A study on intervention with iodinated oil. inst nutr food sci 1983 ; 7-13.
5. Rahman M, Haque M, Prevalance of Endemic Goitre in Bangladesh, Bangladesh scientific and industrial research 1976 ; 11: 1-4.
6. La Rosa GL, La Porta GA, Belfiore A. Cancer risk in patients with cold thyroid nodules, Am J Med 1992 ; 93 : 393-95.
7. Rojeski MT, Gharib H. Nodular thyroid disease : Evaluation and management. N. Eng. J. Med. 1985; 313: 428-436.
8. Frates MC, Benson CB, Doubilet PM, et al. Prevalence and distribution of carcinoma in patients with solitary and multiple thyroid nodules on sonography. *J ClinEndocrinol Metab*.2006;91(9):3411-3417.
9. Cooper DS, Doherty GM, Haugen BR, Kools RT, Lee SL, Mandel SJ, et al. Revised American Thyroid Association management guidelines for patients with thyroid nodules and differentiated thyroid cancer. *Thyroid* 2009;19:1167-214.
10. Frates MC, Benson CB, Charboneau JW, Cibas ES, Clark OH, Coleman BG, et al. Management of thyroid nodules detected at US: Society of Radiologists in Ultrasound consensus conference statement. *Radiology* 2005;237:794-800.
11. AACE/AME/ETA Guidelines. American Association of Clinical Endocrinologists, Associazione Medici Endocrinologi, and European Thyroid Association medical guidelines for clinical practice for the diagnosis and management of thyroid nodules. *EndocrPract* 2010;16:1-43.
12. AACE/AME Task Force on Thyroid Nodules. American Association of Clinical Endocrinologists and Associazione Medici Endocrinologi medical guidelines for clinical practice for the diagnosis and management of thyroid nodules. *EndocrPract* 2006;12:63-102.
13. McHenry CR, Walfish PG, Rosen IB. Nondiagnostic fine needle aspiration biopsy: a dilemma in management of nodular thyroid disease. *Am Surg* 1993;59:415-9.
14. Alexopoulou O, Beguin C, Buysschaert M, et al. Predictive factor of thyroid carcinoma in non-toxic multinodular goiter. *ActaClinBelg* 2004;59:84-9.
15. Choi UC, Kim JY, Park DY, et al. Recommendations for management of cystic thyroid nodules. *ANZ J Surg* 2005;755:537-41.
16. McCoy KL, Jabbour N, Ogilvie JB, et al. The incidence of cancer and rate of false-negative cytology in thyroid nodules greater than or equal to 4 cm in size. *Surgery* 2007;142:837-44.
17. Schlinkert RT, vanHeerden JA, Goellner JR, et al. Factors that predict malignant thyroid lesions when fine-needle aspiration is "suspicious for follicular neoplasm." *Mayo ClinProc* 1997;72:913-6.
18. Scalabas GM, Staerke GA, Shapiro SE, et al. Fine-needle aspiration of the thyroid and correlation with histopathology in a contemporary series of 240 patients. *Am J Surg* 2003;186:702-10.
19. Carillo JF, Frias-Mendivil M, Ochoa-Carillo FJ, et al. Accuracy of fine-needle aspiration biopsy of the thyroid combined with an evaluation of clinical and radiographic factors. *Otolaryngol Head Neck Surg* 2000;122:917-21.
20. Chen H, Nicol TL, Zeiger MA, et al. Hurtle cell

- 
- neoplasms of the thyroid. Are there factors predictive of malignancy? *Ann Surg* 1998; 227:542-6.
21. Sippel RS, Elaraj DM, Khanafshar E, et al. Tumor size predicts malignant potential in Hürthle cell neoplasms of the thyroid. *World J Surg* 2008;32:702-7.
  22. Sahin M, Gursoy A, Tutuncu B, et al. Prevalence and prediction of malignancy in cytologically indeterminate thyroid nodules. *ClinEndocrinol* 2006;65:514-8.
  23. Raber W, Kaserer K, Niederle B, et al. Risk factors for malignancy of thyroid nodules initially identified as follicular neoplasia by fineneedle aspiration: results of a prospective study of one hundred twenty patients. *Thyroidology* 2000;10:709-10.
  24. Kim EK, Park CS, Chung WY, et al. New sonographic criteria for recommending fine-needle aspiration biopsy of nonpalpable solid nodules of the thyroid. *AJR Am J Roentgenol* 2002;178:687-91.
  25. Gauger PG, Reeve TS, Delbridge LW. Intraoperative decision making in follicular lesions of the thyroid: is tumor size important. *J Am CollSurg* 1999;189:253-8.
  26. Orell SR, Sterrett GF, Walters MN, Whitakar D, editors. *Manual and atlas of fine needle aspiration cytology*. New Delhi: Churchill-Livingstone; 2005. p. 125-64.
  27. Ogilvie JB, Piatigosky EJ, Clark OH. Current status of fine needle aspiration for thyroid nodules. *AdvSurg* 2006;40:223.
  28. Amrikachi M, Ramzy I, Rubinfeld S, Wheeler MT et al. Accuracy of fine needle aspiration of thyroid: a review of 6226 cases and correlation with surgical or clinical outcome. *Arch Pathol Lab Med* 2011;125:484.
  29. Kabir A D M, Rahman M, Talukdar Q I, Alam S, Ali S A. Clinico-pathological correlation- A study of 30 cases of nodular thyroid. *Bangladesh Armed Forces Medical Journal* 2000; 27: 1-4.
  30. Islam M K, Alam S M, Moslem F, Hossain M. Role of FNAC in Diagnostic & Therapeutic Management of Solitary Thyroid Nodule. *Journal of Bangladesh College of Physicians and Surgeons* 1998; 16: 50-56.
  31. Caraci P, Aversa S, Mussa A et al. Role of fine-needle aspiration biopsy and frozen section evaluation in the management of thyroid nodules. *British Journal of Surgery* 2002; 89: 797-801.
  32. Kamran SC, Marqusee E, Kim MI, et al. Thyroid nodule size and prediction of cancer. *J ClinEndocrinolMetab* 2013; 98: 564-70.
  33. Christopher R M, Eun S H, Rhoderick N M, et al. Is nodule size an independent predictor of thyroid malignancy? *J. Surgery* 2008; 144: 1062-9.
-



# Assessing Knowledge, Attitude and Practice (KAP) towards COVID-19 among Dhaka City Residents

Chowdhury N S<sup>1</sup>, Chowdhury N N<sup>2</sup>, Afroz S<sup>3</sup>, Akhiruzzaman<sup>4</sup>, Begum N<sup>5</sup>, Monami S<sup>6</sup>

## Abstract

**Background:** Bangladesh has adopted some special steps to control the rapid spread of the COVID-19 pandemic situation. However, the local resident's knowledge, attitudes and practices towards COVID-19 play an important role in defining a society's eagerness to accept behavioral change measures from health authorities.

**Objective:** To assess the level of knowledge, attitude and practice of residents towards the COVID-19 disease.

**Methods:** This was a online survey which was descriptive cross-sectional in nature regarding the knowledge, attitudes and practices of respondents towards COVID-19. It was conducted from the 1<sup>st</sup> February 2020 to 31<sup>st</sup> July 2020. Data were collected by online using Google Forms. A total of 54 participants participated in the study.

**Result:** Among all the respondents most 29(53.7%) were within 18-30 years age group. Mean age was 31.26(SD ±11.01) years, minimum 18 years and maximum 55 years. Female respondents were more(77.8%) in number than male. A total of 30 questions were asked to assess knowledge, attitude and practice regarding COVID-19 disease. Mean knowledge score was 13(±1.37) and 81.5 % had good knowledge. Mean attitude score was 7.20(±0.07) and 98.1 % had good attitude. Regarding practices 74.1% of the respondent had good practice and mean score was 6.09(±1.03).

**Conclusion:** Though about 74.1% of total respondents had good practice towards preventive measures of COVID-19 but all of them are Dhaka city resident, so more awareness campaign should be conducted focusing on the residents in rural area to cover their knowledge gaps and motivation for appropriate practice.

**Key words:** COVID-19 Disease, Pandemic, Knowledge, Attitude, Practice, Dhaka city

## Introduction

The knowledge, attitudes and practice towards COVID-19 play an important role in defining a society's eagerness to accept behavioral changes measures from health

authorities.<sup>1,2</sup> The highly infectious novel corona virus disease that was first identified Wuhan, China, the causative agent was initially named as 2019 novel corona virus (2019-nCoV). Which later was renamed as SARS-CoV-2 and the disease it caused was named as corona virus disease 2019 (2019-nCoV).<sup>3,5</sup> On 30th January World Health Organization (WHO) declared that the outbreak constitutes a Public Health Emergency of International Concern (PHEIC) and as global pandemic on 11<sup>th</sup> March 2020.<sup>5,6</sup> The COVID-19 pandemic is associated with increasing morbidity and mortality and has impacted the lives of the global population.<sup>5,7</sup> SARS-CoV-2 is an enveloped non-segmented RNA virus.<sup>3,8</sup> Among the six corona viruses known to infect humans generally are responsible for mild respiratory symptoms similar to that associated with the common cold while SARS-CoV-2, SARS-CoV and MERS-CoV are implicated to cause lethal respiratory infection.<sup>8</sup> Through the natural reservoir of SARS-CoV-2 remains obscure bat has been implicated to be the source of SARS-CoV-2 based on its 96.2% genomic similarity with the bat corona virus COV Ra T-G 13.<sup>9,10</sup> The COVID-19 virus is transmitted mainly through close physical contact and respiratory droplets, while airborne transmission is possible during aerosol generating medical procedure.<sup>11</sup> SARS-CoV-2 invades lower respiratory tract cells using the angiotensin- converting enzyme 2 (ACE-2) receptor.<sup>12</sup> The incubation period of the SARS-CoV-2 is 1-14 days and individuals with asymptomatic infection were

1. Dr. Nasrin Sultana Chowdhury  
Associate Professor & Head, Department of Community Medicine, Aichi Medical College, Dhaka
2. Dr. Nurun Nahar Chowdhury  
Associate professor & Head, Department of Psychiatry, Green life Medical College, Dhaka
3. Dr. Shahana Afroz  
Assistant Professor, Department of Community Medicine, Diabetic Association Medical College, Faridpur.
4. Dr. Akhiruzzaman  
Assistant Professor, Department of Community Medicine, Diabetic Association Medical College, Faridpur
5. Dr. Nadia Begum  
Associate Professor, Department of Community Medicine, ZH Sikder Women's Medical College, Dhaka
6. Dr. Sadia Monami  
Lecturer, Department of Anatomy, MH Samorita Hospital and Medical College, Tejgaon, Dhaka.

## Correspondence to:

Dr. Nasrin Sultana Chowdhury  
Associate Professor & Head, Department of Community Medicine,  
Aichi Medical College, Dhaka.  
E-mail:sharna2020@gmail.com

found to spread the disease.<sup>13</sup> SARS-CoV-2 infection could result in mild to severe respiratory illness (often flu like) commonly manifested by dry cough, fever, myalgia and in severe cases by difficulty in breathing and sometimes symptoms referable to other organ system.<sup>14</sup> Global Health Expert and South Asia Governments have expressed concern about the spread of COVID-19 and potential for more than 7.6 million deaths in south Asia if no action taken.<sup>7</sup> As part of its preparation for facing the pandemic the Government of Bangladesh had put in place several precautionary measures including limitation of on arrival visa, strengthening the health screening services at the point of entries. On the 1<sup>st</sup> of February, 312 Bangladeshi returned from Wuhan<sup>15</sup> and this group of returnees were placed under 14 days formal institutional quarantine before being allowed to go home. Despite of all efforts taken by the country, Bangladesh reported its first case on March 8, 2020 and number began to rise from April, 2020. The first confirmed case of COVID-19 in Bangladesh was reported on 8<sup>th</sup> March 2020 there after each day increasing number of COVID-19 patients were detected.<sup>16, 17</sup> To limit the spread of disease all educational institutes were declared closed from 17<sup>th</sup> March 2020. In addition different stakeholders initiated awareness building programs using audio-visual methods, radio, television, cable network and social media targeting prevention of COVID-19 throughout the country. Human knowledge and behavior about disease is often critical for the success in efforts for containing a disease outbreak. Pandemic situations are often followed by infodemics, large amounts of fabricated, fictitious information circulate on social media relating to mode of infection, the disease itself and means of disease prevention, in such context knowledge and behavior assessment the public is essential for success of awareness programs<sup>18</sup>. People are in general willing to maintain social distance and quarantine which can slow down the infection, although they have high anxiety about possible infection, which can be reduced through increasing awareness and addressing mental health issues. Younger respondents are likely to be asymptomatic when infected and could be unaware they are putting others at risk. On the other hand, chances of infection and the severity of illness are much with aged people. Studying individual awareness can motivate people to practice the preventive measures. Behavioral changes refers to knowledge (what is known), Attitude (what is thought) and practices (what is done). A KAP survey of any community in relation to a particular topics serves as an educational diagnosis of that population through examining what people know, what they believe and how they behave.<sup>19-21</sup> KAP is a very common tool used in health-seeking research.<sup>22</sup> This KAP study explores what Bangladeshi citizens know about COVID-19 symptoms and prevention, how they view the socio-cultural effects of the disease, and what practices they use to prevent the infection. Understanding the KAP of the local citizen might enable the government and other authorities to introduce and implement 'a more efficient process of awareness creation programs' which will more

appropriately address the interventional needs of the community.<sup>22</sup> However this finding will be effective and tailored health education programs aimed at improving COVID-19 knowledge, thereby leading to more favorable attitudes and to implementation and maintenance of safe practices.

## Materials and Methods

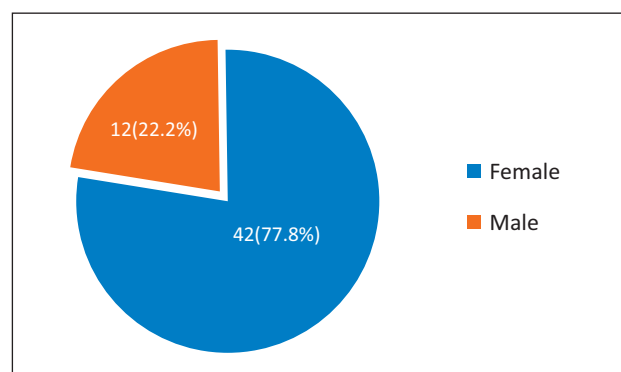
This was a cross-sectional online survey regarding the knowledge, attitudes and practices of citizen towards COVID-19. It was conducted from 1<sup>st</sup> February 2020 to 31<sup>st</sup> July 2020. An online survey was prepared using one of the popular Google tools called Google Forms. The link to the questionnaire was shared on various social media applications like Messenger, WhatsApp and Viber. Any residents in Dhaka city, more than 18 years old and minimum SSC pass were included in this study. Participants who gave consent and willingly participate in the survey would be directed to complete the self-administered questionnaire. A total 54 respondents were included in the study. A brief introduction on the objectives, declarations of anonymity and confidentiality was given prior to filling the questionnaire. The questionnaire consists two section including socio-demographics and KAP inquires. Demographic information included age, gender, religion, occupation and level of education. KAP section consisted of 30 questions, among which 15 questions (Response taken as yes/no/don't know) for assessment of knowledge regarding clinical symptoms and transmission route of COVID-19. Total 8 questions (response taken as yes/no/don't know) for assessment of attitude and another 7 questions (response taken as yes/no/occasionally) for assessing practice. A note appeared in the link that a participants was to fill in all items otherwise they would not be able to proceed and on completion they were to click the submit button. Each correct answer was given one point and wrong answer and don't know responses given zero point. Total knowledge score ranging from 0 (no correct answers) to 15 (all correct answers), attitude score ranging from 0 (no correct answers) to 8 (all correct answers) and practice score ranging from 0 (no correct answers) to 7 (all correct answers). Bloom's cut of 80% was used to determine whether the respondent had good or bad knowledge (score 12) positive attitude (score 6.4=6) and good practice (score 5.8=6) or not.<sup>23</sup> After collecting data responses were scored and analyzed through SPSS (Version-26) software.

## Result

**Table 1:** Distribution of the respondents according to age groups (n=54)

Age groups (In years)	Frequency	Percentage
18-32	29	53.7
33-47	21	38.9
48-55	04	7.4
Total	54	100
Mean age was 31.26(SD $\pm$ 11.01) years, minimum 18 years and maximum 55 years		

Table 1 shows that majority (53.7%) respondents were within 18 to 32 years age group and mean age was 31.26(SD  $\pm$ 11.01) years, minimum 18 years and maximum 55 years.



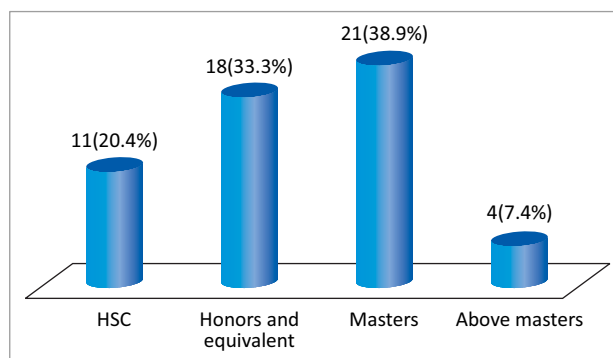
**Figure 1:** Distribution of the respondents according to sex (n=54)

Figure 1 shows that 42 (77.8%) were female and rest (22.2%) were male.

**Table 2:** Distribution of the respondents according to religion (n=54)

Religion	Frequency	Percentage
Islam	52	96.3
Hinduism	02	3.7
Total	54	100

Table 2 shows that among all the respondents most i.e. 96.3% were Muslims and rest (3.7%) were Hindu.



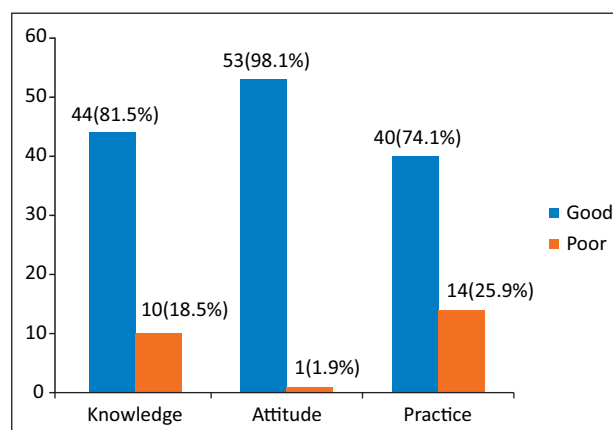
**Figure 2:** Distribution of the respondents according to educational qualification (n=54)

Figure 2 shows that 21(38.9%) respondents completed master degree, about 20.4% completed HSC and 18(33.3%) completed honors and equivalent level.

**Table 3:** Distribution of the respondents according to occupation (n=54)

Occupation	Frequency	Percentage
Home Maker	03	5.6
Non-government services	15	27.8
Government services	04	7.4
Business	07	13.0
Student	21	38.9
Others	04	7.4
Total	54	100

Table 3 shows that majority(38.9%) were student and 27.8%, 13.0% & 5.6% were Non-government services holder, Businessman & home maker respectively.



**Figure 3:** Distribution of the respondents according to level of knowledge, attitude and practice

Figure 3 shows that among the respondents 44 (81.5%) had good knowledge, about 98.1% had good attitude and 74.1% had good practice regarding Covid-19 disease.

**Table 4:** Association between Gender with knowledge, attitude and practice (KAP)

Attributes	Knowledge			Attitude			Practice		
	Poor f(%)	Good f(%)	p	Poor f(%)	Good f(%)	p	Poor f(%)	Good f(%)	p
Male (n=12)	3 (25.0)	9 (75.0)	0.51	0 (0.0)	12 (100.0)	0.59	5 (41.7)	7 (58.3)	0.15
Female (n=42)	7 (16.7)	35 (83.3)		1 (2.4)	41 (97.6)		9 (21.4)	33 (78.6)	

Table 4 shows that 83.3% female & 75.0% male had good knowledge, on the other hand 100% male & 97.6% female has good attitude and 58.3% male & 78.6% female had good practice regarding Covid-19 disease. There are some differences between male and female respondents but these differences are not statistically significant.

**Table 5:** Correlation between monthly family income and knowledge, attitude and practice

Attributes		Monthly income after Covid-19	Knowledge	Attitude	Practice
Monthly income after Covid-19	Pearson Correlation	1	0.126	0.176	0.303
	Sig. (2-tailed)		0.366	0.204	0.026*
	N	54	54	54	54
Knowledge	Pearson Correlation	0.126	1	0.105	0.199
	Sig. (2-tailed)	0.366		0.451	0.148
	N	54	54	54	54
Attitude	Pearson Correlation	0.176	0.105	1	0.325
	Sig. (2-tailed)	0.204	0.451		0.017*
	N	54	54	54	54
Practice	Pearson Correlation	0.303	.199	0.325	1
	Sig. (2-tailed)	0.026	0.148	0.017	
	N	54	54	54	54
*Correlation is significant at the 0.05 level.					

Table 5 shows that monthly family income is significantly correlate ( $p < 0.05$ ) with practice.

## Discussion

In this cross-sectional study, all of the respondents, showed a good sense of knowledge, attitudes and practices towards the current pandemic of COVID-19. A brief percentage distribution of variables in this study is given. It is observed

that the percentage of female and male respondents are 77.8% and 22.2% respectively, indicating a different level of representation. Female are more willing to participate than male. Other study shows that female participant is more than male.<sup>24</sup> Among them 53.7% are within 18-32 years age group due to their eagerness. Another study shows that in this age group are more enthusiastic.<sup>24</sup> From religious view 96.3% are Muslim because of it is a Muslim predominant country. Regarding educational qualification, 38.9% completed masters and regarding occupation majority(38.9%) are students. Among all the respondents, 81.5% had good knowledge 98.1% had good attitude and 74.1 % had good practice towards the COVID-19. In the discussion of COVID-19 related knowledge items are higher than the previous studies.<sup>25,26</sup> And similar to another study which is reported 82.85% had good knowledge.<sup>24</sup> In this study there are 54 respondents in total and mean age is 31.26( $\pm 11.01$ ) years. The mean income is decreases during COVID-19 and it may be due to repeated lockdown to prevent the spread of infection & many people are terminated from their job.

## Conclusion

The health awareness programs, that are designed after pandemic declaration by WHO, played a vital role in improving the knowledge of the population, attitudes encouragement and sustaining the safer practices towards this COVID-19. In fact this disease played a role of game changer in changing KAP in residents.

## References

- Zhong B, Luo W, Li H, Zhang Q, Liu X, Li W, et al. Knowledge ,attitudes and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross- sectional survey. *Int J Biol Sci*, 2020;16: 1745-1752
- Giao H ,Nguyen TNH, Tran VK, Vo KN, Vo VT, Pham LA. Knowledge and attitude toward COVID-19 among healthcare workers at District 2 hospital, Ho Chi Minh City. *Asian Pac J Trop Med*, 2020; 13.
- Lu R, Zhao X, Niu P, Yang B, Wu h, et al Genomic Characterization and epidemiology of 2019 novel coronavirus :Implications for virus origin and receptor binding. *Lancet*, 2020; 395:565574.
- Riou J, Althaus Cl, Pattern of early human-to human transmission of Wuhun 2019 novel coronavirus (2019-n CoV), December 2019 to January 2020. *Euro Surveill* ,2020;25 (4): 2000058. <https://doi.org/10.2807/1560-7917.ES.2020.25.4.2000058>.
- WHO. WHO announces COVID-19 outbreak a pandemic. 12 March 2020. <https://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/news/news/2020/3/who-announces-covid-19-outbreak-a-pandemic>.



6. WHO. COVID-19 as a Public Health Emergency of International Concern (PHEIC) under the IHR. <https://extranet.who.int/sph/covid-19-public-health-emergency-international-concern-pheic-under-ih>.
7. Walker PGT, Whittaker C, Watson O, Baguelin M, Ainslie KEC, Bhatia S, et al. The Global Impact of COVID-19 and Strategies for Mitigation and Suppression. Imperial College London (2020), doi:<https://doi.org/10.25561/77735>.
8. Acter T, Uddin N, Das J, Akhter A, Choudhury TR, Kim S. Evolution of severe acute respiratory syndrome coronavirus disease 2019 (COVID-19) Pandemic: A global health emergency. *Sci Total Environ*. 2020 Aug 15; 730:138996. Epub 2020 Apr 30. <https://doi.org/10.1038/s41586-020-2012-7>
9. WHO. Report of the WHO-China Joint Mission on coronavirus Disease 2019 (COVID-19), 2020a. [https://www.who.int/publications/i/item/report-of-the-who-china-joint-mission-on-coronavirus-disease-2019-9\(covid-19\)](https://www.who.int/publications/i/item/report-of-the-who-china-joint-mission-on-coronavirus-disease-2019-9(covid-19))
10. Zhou P, Yang XI, Wang XG, Hu B, Zhang L, Zhang W et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature*, 2020; 579: 270-273. <https://doi.org/10.1038/s41586-020-2012-7>
11. WHO. Cleaning and disinfection of environmental surfaces in the context of COVID-19. Interim guidance, 15 May 2020b. <https://www.who.int/publication/i/item/cleaning-and-disinfection-of-environmental-surfaces-in-the-context-of-covid-19>.
12. Fang L, Karakiulakis G, Roth M. Are patients with hypertension and diabetes mellitus at increased risk for COVID-19 infection? *Lancet Respir Med*, 2020. [https://doi.org/10.1016/S2213-2600\(20\)30116-8](https://doi.org/10.1016/S2213-2600(20)30116-8)
13. Jin YH, Cai L, Cheng ZS, Cheng H, Deng T, Fan YP, et al. A rapid advice guideline for the diagnosis and treatment of 2019 novel coronavirus (2019-nCoV) infected pneumonia (Standard Version). *Mil Med Res*. 2020; 7(1):4. <https://doi.org/10.1186/s40779-02033-6>
14. Maheshwari S, Gupta PK, Sinha R and Rawat P. Knowledge, attitude and practices towards coronavirus disease-2019 (COVID-19) among Medical students: A cross-sectional study. *J Acute Dis*. 2020; 9(3): 100-104. Doi:10.4103/2221-6189.283886.
15. 312 Bangladeshi return from china. Independent online/BSS Published by independent Publications limited at Media Printers, 446/H, Tejgaon I/A Dhaka-1215. Beximoco Media Complex, 149-150 Tejgaon I/A, Dhaka -1208, Bangladesh. GPO Box No. 934, Dhaka 1000. MODIFIED: 2 February, 2020 09:19:08 AM
16. Bangladesh confirms first three coronavirus cases. Somoy English Desk. 2020 March 16:20. <https://en.somoynews.tv/5897/news/Bangladesh-confirms-first-three-corona-virus-cases>.
17. Hossain I, Khan MH, Ahmed SA, Rahman MS, Mullick AR, Aktaruzzaman MM. The epidemiological Characteristics of an outbreak of 2019 Novel Coronavirus Diseases (COVID-19) In Bangladesh. A Descriptive study. *JMSCR*. Volume 08 issue 04 April 2020. Doi: <https://dx.doi.org/10.18535/jmscr/v8i4.94>
18. Geldsetzer P. Knowledge and precautions of COVID-19 among the general public in the United States and the United Kingdom: a cross-sectional online survey. *Ann Intern Med*. (2020) M20-0912 doi: 10.7326/M20-0912.
19. Good B. Medicine, rationality, and experience: an anthropological perspective. Cambridge: Cambridge University Press 1994.
20. Ribeaux, P., & Poppleton, S.K. 1978. Psychology and work: an introduction. London: Macmillan. Roy, D., Tripathy, S., Kara, S.K., Sharma, N., Verma, S.K., & Kaushal, V. 2020. Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic. *Asian Journal of Psychiatry*, vol. 51 article id: 102083. doi: 10.1016/j.ajp.2020.102083.
21. Tannahil, A. 2008. Beyond evidence to ethics: a decision-making framework for health promotion, Public health and health improvement. *Health Promot. Int.* vol. 23, p. 380-390.
22. World Health Organization 2008. Advocacy, communication and social mobilization for TB Control: a guide to developing knowledge, attitude and practice surveys.
23. Olum R, Chekwech G, Wekha G, Nassozi DR, Bonogomin F. Coronavirus Disease-2019: Knowledge, Attitude, and Practices of Health Care Workers at Makerere University Teaching Hospitals, Uganda. *Front Public Health*. 2020 Apr 30; 8:181. doi:10.3389/fpubh.2020.00181.
24. Hossain I, Ahmad SKA, Khan M.H, et al (2020), Covid 19 and changing behaviors a cross-sectional online survey among students in Bangladesh, *European journal of pharmaceutical and medical research*, volume 7(9), 576-581.
25. Kim JS, Choi JS. Middle East respiratory syndrome-related knowledge, preventive behaviours and risk perception among nursing students during outbreak. *J Clin Nurs*, 2016; 25(17-18):2542-9 doi:10.1111/jocn.13295.
26. Khan MU, Shah S, Ahmad A, Fatokun O. Knowledge and attitude of health care workers about middle east respiratory syndrome in multispecialty hospitals of Qassim, Saudi Arabia. *BMC Public Health*, 2014; 1281. doi: 10.1186/1471-2458-14-1281.

# Association of IgG Antibody with Herpes Simplex Virus Type-2 among Women Having Spontaneous Abortion & Normal Delivery

Saheduzzaman M<sup>1</sup>, Hassan P<sup>2</sup>, Al Hossain M M A<sup>3</sup>, Sharmin Z<sup>4</sup>, Hasan R<sup>5</sup>, Zahan A<sup>6</sup>

## Abstract

**Background:** HSV-2 is a common human pathogen that leads to lifelong latent infection. Infection with HSV-2 is one of the most common sexually transmitted infections. Maternal infections may be associated with transmission to the fetus as the infection is common in women of reproductive age. It can be contracted and transmitted to the fetus during pregnancy and the newborn. The greatest risk for miscarriage, premature labour, inhibited fetal growth or transmission of the herpes infection to the infant cause of neonatal infection, which can lead to death or long-term disabilities.

**Objective:** To estimate IgG antibody to Herpes Simplex Virus type 2 in women with spontaneous abortion and women with normal delivery.

**Methods:** This Cross-sectional study carried out among 40 patients (group-I) with spontaneous abortion and 40 patients (group-II) of normal delivery attended at the department of Obs & Gynae, Gonoshasthaya Samaj Vittik Medical College Hospital, Savar, Dhaka, Bangladesh for a period of 1 years from July 2015 to June 2016. Laboratory facilities were availed from the Molecular Biology Laboratory, Institute of Biological Sciences, the University of Rajshahi, Bangladesh and the Department of Microbiology, Gonoshasthaya Samaj Vittik Medical College & Hospital.

**Results:** The mean age was found 25.5±5.7 years in group I and 25.2±5.5 years in group II. The mean age was not statistically significant ( $p>0.05$ ) between two groups. Anti-HSV-2-IgG was found among 10(25%) women with spontaneous abortion (group I) and 7(17.5%) women with normal delivery (group II). The difference of the result was not statistically significant ( $p>0.05$ ) between two groups. The highest rate of past history of abortion was found in 6(37.5%) cases out of total 16 seropositive women with spontaneous abortion group (group I). History of abortion was higher in spontaneous abortion group (group I) but not statistically significant ( $p>0.05$ ).

**Conclusion:** The seroprevalence of HSV-2 was relatively high in women with spontaneous abortion. Sero positive HSV-2 antibodies occurred at highest rate in age group 18-23 years old in both group.

**Keywords:** HSV-2, Spontaneous Abortion, Normal delivery

## Introduction

Earlier and recent reports globally, as well as in

1. Dr. Md. Saheduzzaman  
Assistant Professor and Head, Department of Microbiology  
Ad-din Akij Medical College, Khulna.
2. Professor Dr. Parvez Hassan, PhD  
Professor, Institute of Biological Sciences, RU.
3. Dr. M M Aeoranjeb Al Hossain, PhD  
Directorate General of Health Services, Bangladesh.
4. Dr. Zakia Sharmin  
Diploma in Cardiology (On Course, UK).
5. Dr. Rashidul Hasan  
Consultant, Department of Dermatology and Venerology  
SFMMKPJ Specialized Hospital, Gazipur, Bangladesh.
6. Dr. Afroj Zahan  
Assistant Professor and Head, Department of Anatomy  
Gazi Medical College, Khulna.

## Correspondence to:

Dr. Md. Saheduzzaman  
Assistant Professor and Head, Department of Microbiology  
Ad-din Akij Medical College, Khulna.  
E-mail: sahed2004@gmail.com

Bangladesh, have shown increasing rates of prevalence of HSV-2 infection. The acquisition of genital herpes during pregnancy has been associated with spontaneous abortion, intrauterine growth retardation, pre-term labour, congenital and neonatal herpes infections. Pregnancy loss in human has been attributed to several factors. Genetic and uterine abnormalities, endocrine and immunological dysfunctions, infectious agents, environmental pollutants, psychogenetic factors and endometriosis are most important causes of spontaneous abortion<sup>1</sup>. Some maternal infections, especially during the early gestation, can result in fetal loss or malformations because the ability of the fetus to resist infectious organisms is limited and the fetal immune system is unable to prevent the dissemination of infectious organisms to various tissues<sup>1</sup>. Recurrent pregnancy wastage due to maternal infections transmissible in utero at various stage of gestation can be caused by a wide array of organisms including the TORCH complex (Toxoplasma gondii, Rubella virus, Cytomegalovirus, Herpes simplex viruses) and other agents like *Chlamydia trachomatis*, *Treponema pallidum*, *Niesseria gonorrhoeae*, HIV, *Coxiella burnetii* etc.<sup>1</sup>

The ability of these viruses to cross the placenta, infect the foetus and cause the damage depends on the mother's immune status against the specific virus although primary infections during pregnancy are known to be significantly more damaging than secondary infections or reactivations, the trimester in which the infection occurred is also a determining factor.<sup>2</sup>

HSV infections are caused by two strains: HSV-1 and HSV-2. Infections with both strains are widespread in all human populations and result in persistent and latent infections.

HSV-1 is commonly responsible for oro-fecal infections and is usually transmitted during childhood and adolescence and HSV-2 is more likely to cause genital lesions<sup>3</sup>. Genital HSV infection is one of the most common sexually transmitted diseases. After initial infection, the virus can reside as life-long virus and remains latent until the opportunity for recurrence, thus genital herpes is generally a recurrent and incurable viral disease.<sup>4</sup> The majority of both primary and recurrent infections are asymptomatic diseases, however, in symptomatic cases, lesions are very painful<sup>5</sup> and obviously affect the quality of the life in patients. HSV can easily spread in populations because of asymptomatic nature of disease and is a suitable marker to evaluate the sexual behaviours.<sup>5</sup>

HSV-2 infection in pregnant women can result in abortion, premature labor, congenital and neonatal herpes<sup>6</sup>. Herpes simplex virus type 2 (HSV-2) is the major cause of genital herpes; 78-97% of HSV-2 infections are asymptomatic<sup>7</sup>. The worldwide prevalence of HSV-2 seropositivity is alarmingly high especially among women of reproductive age group. Antibodies to HSV-2 have been detected in approximately 20% of pregnant women; however, only 5% reported a history of symptomatic infection.<sup>8</sup>

Global prevalence of Herpes Simplex Virus type 2 (HSV-2) infections is calculated to be 16.2%. In Bangladesh, screening pregnant women for these infections are only carried out upon a clinician's request which has contributed to the lack of data on the prevalence of Herpes Simplex-2 viruses in pregnant women in the country. In our country, there are very few studies relating to HSV-2 prevalence, 11.71% reported by Nabi *et al.* and 12% by Bogaerts *et al.*<sup>9,10</sup> The acquisition of genital herpes during pregnancy has been associated with spontaneous abortion, intrauterine growth retardation, pre-term labour, congenital and neonatal herpes infections.

The information on HSV and its sero-prevalence in pregnant women is very limited in Bangladesh. Information on the occurrence of asymptomatic HSV-2 infection among pregnant women in our region is scanty. Keeping the above facts in mind, this study was undertaken to determine the occurrence of genital HSV-2 infection among asymptomatic pregnant women and HSV-2 shedding during the birth of the child. The objectives of the present experiment were to study the sero-prevalence of HSV (IgG antibodies) in pregnant women of Bangladesh

and its correlation to age groups.

The information's emerging from this study might be useful background information for further large scale study in defining the extent of problem for development of interventional strategy and it will extend the number of few studies that have been carried out on the general population regarding Herpes Simplex Virus type 2 infections in pregnant women.

## Materials and Methods

This was a cross-sectional study for a period of 1 years from July 2015 to June 2016 carried out in the Molecular Biology Laboratory, Institute of Biological Sciences, University of Rajshahi, Bangladesh availing the Laboratory facilities of the Department of Microbiology, Gonoshasthaya Samaj Vittik Medical College & Hospital, Savar, Dhaka, Bangladesh. Women with spontaneous abortion (40 patients, group I) and women with normal delivery (40 patients, group II) attending at Gonoshasthaya Samaj Vittik Medical College Hospital, Savar, Dhaka, Bangladesh during the study period. Patients having induced abortion, therapeutic abortion and criminal abortion were excluded from the study.

Serum IgG antibody against Herpes Simplex Virus type 2 was measured by ELISA method following the instructions provided by manufacturers along with it. Statistical analyses were carried out by using the Statistical Package for Social Sciences version 20.0v for Windows (SPSS Inc., Chicago, Illinois, USA). Unpaired t-test and chi square test were performed for continuous and categorical variable respectively. A "p" value <0.05 was considered as significant.

## Results

**Table 1:** Distribution of study population(women with spontaneous abortion and normal delivery) by age (n=80)

Variable	Group-I (n=40)		Group-II (n=40)		P value
	f	%	f	%	
Age (in years)					
18-23	19	47.5	17	42.5	0.873
24-29	12	30.0	15	37.5	
30-35	7	17.5	6	15.0	
36-40	2	5.0	2	5.0	
Mean±SDRange (Min-max)	25.0±5.7 (18-40)		25.2±5.5 (18-40)		

Table 1 Showed almost half (47.5%) patients belonged to age 18-23 years in group I and 17(42.5%) in group II. The mean age was calculated to be 25.5±5.7 years in group I and 25.2±5.5 years in group II.



**Table 2.** Distribution of study population (women with spontaneous abortion and normal delivery) by HSV-2 antibodies sero-prevalence (n=80)

Sero-prevalence of HSV-2 antibodies	Group-I (n=40)		Group-II (n=40)		P value
	f	%	f	%	
IgG (+)	10	25.0	7	17.5	0.331
IgG (-)	24	60.0	29	72.5	

Table 2 showed the anti-HSV-2-IgG was found in 25 % of women with spontaneous abortion (group I). Regarding the women with normal delivery (group II), IgG was 17.5 % .other 24 women (60%) in group I and 29 women (72.5%) in group II was IgG negative. Rest of the 6 sample in group I and 4 sample of group II, IgM was positive which was not included in the current study. The difference of the result was not statistically significant ( $p>0.05$ ) between two groups.

## Discussion

In this study the mean age was found  $25.5\pm5.7$  years in group I and  $25.2\pm5.5$  years in group II. The findings of this study were very similar to the findings of Abdulla who found 50.0% women were aged 18-23 years.<sup>11</sup> Biskup *et al.* reported that the HSV-2 seroprevalence increases simultaneously from puberty onwards and in the age group  $>56$  years in the women's group it reaches 50.0%.<sup>12</sup> A study by Aljumaili *et al.* showed a significant variation in current HSV 2 infection between age groups, the highest incidence in women with age of 20-29 years old, while the lowest rate in women of  $<19$  years old, which were consistent with the current study.<sup>13</sup> On the other hand Kim *et al.* reported that the mean age was  $31.6\pm4.6$  years in the HSV-2 positive group and  $30.4\pm4.2$  years in the healthy control group, which was higher than the findings of the current study.<sup>14</sup> It was observed that anti-HSV-2-IgG was found in 25 % of women with spontaneous abortion (group I). Regarding the women with normal delivery (group II), the rate of IgG is 17.5%. In a Saudi study by Al-Marzoqi *et al.* revealed Toxoplasma IgG antibodies were detected in 35.6%, CMV total IgG antibodies were found in 92.1%, rubella IgG antibodies in 93.3%, HSV-1 IgG antibodies in 90.9%, HSV-2 IgG in 27.1% which was similar to the current study.<sup>15</sup> Abdulla in his study showed that anti-HSV-2-IgG is 35.22 % ,which was higher than the current study.<sup>11</sup> Regarding the control group, the rate of IgG was 22.38 % and almost same to the current study. On the other hand Ariani & Chaichi studied on 150 women; only 2.7 % were IgG and IgM positive for HSV virus, which was lower than the findings of the current study.<sup>16</sup>

## Conclusion

The seroprevalence of HSV-2 was relatively high in women with spontaneous abortion. Sero positive HSV-2 antibodies occurred at highest rate in age group 18-23 years old in both group. Past history of abortion and 1<sup>st</sup> trimester was more common in women with HSV-2

## References

- Haider M, Rizvi M, Khan N, Malik A. 2011. Serological study of herpes virus infection in female patients with bad obstetric history. *Biology and Medicine* 3(2): 284-290.
- Mendelson E, Yair Aboudy, Zahava Smetana, Michal Tepperberg , Zahava Grossman. 2006. Laboratory assessment and diagnosis of congenital viral infections: Rubella, cytomegalovirus (CMV), varicella-zoster virus (VZV), herpes simplex virus (HSV), parvovirus B19 and human immunodeficiency virus (HIV). *Reproductive Toxicology* 21: 350–382.
- Arduino PG, Porter SR. 2008. Herpes Simplex Virus Type 1 Infection: Overview on Relevant Clinico-Pathological Feature. *Relevant Clinico-Pathological Feature. Journal of Oral Pathology and Medicine* 37, 107- 121.
- Johnson P, Barnes R, Hart C, Francis W. 1994. Determinants of immunological responsiveness in recurrent spontaneous abortion. *Transpl* 38:280-284.
- Corey L, Handsfield HH.2000. Genital Herpes and Public Health: Addressing a Global Problem. *The Journal of the American Medical Association* 283: 791-794.
- Kimberlin DW, Lin CY, Jacobs RF. 2001. Natural history of neonatal herpes simplex virus infections in the acyclovir era. *Pediatrics* 108:223-229.
- Wald A, Ashley-Morrow R. 2002. Serologic Testing for Herpes Simplex Virus HSV-1 and HSV-2 Infection. *Clinical Infectious Diseases*, 35: S173-S182.
- Ashley R, Wald A. 1999. Genital herpes: Review of the epidemic and potential use of type-specific serology. *Clin Microbiol Rev* 12: 1-8.
- Nabi SN, Wasey AFSA, Haider KMTS, Khan AA, Hoque MM. 2012. Seroprevalence of torch antibody in pregnant women. *JAFMC Bangladesh* 8: 35-39.
- Bogaerts J, Ahmed J, Akhter N, Begum N, Rahman M, Nahar S. 2001. Sexually transmitted infections among married women in Dhaka, Bangladesh: unexpected high prevalence of herpes simplex type 2 infection. *Sex Transm Inf* 77: 114–119.
- Abdulla AK. 2014. Sero-prevalence of Herpes Simplex Virus Type 2 (HSV-2) in Pregnant Women and its Relation to Some Blood Cells and IL-2 in Kirkuk, Iraq, *Middle East Journal of Internal Medicine*. 7 (3):19-27.
- Biskup UG, Ursic T, Petrovec M. 2015. Laboratory diagnosis and epidemiology of herpes simplex 1 and 2 genital infections. *Acta Dermatovenereologica* 24: 31-35.
- Aljumaili ZKM, Alsamarai AM, Najem WS. 2013. Seroprevalence of Herpes Simplex Virus Type 2 (HSV2) in Women with Bad Obstetric History.

- 
- American Journal of Dermatology and Venereology 2(3):31-38.
14. Kim D, Chang HS, Hwang KJ. 2012. Herpes Simplex Virus 2 Infection Rate and Necessity of Screening during Pregnancy: A Clinical and Seroepidemiologic Study. *Yonsei Med J* 53(2): 401-407.
15. Al-Marzoqi, AHM, Kadhim, RA, Al-Janabi, DKF, Hussein, HJ, Al-Taei ZM 2012. Seroprevalence study of IgG and IgM Antibodies to Toxoplasma, Rubella, Cytomegalovirus, Chlamydia trachomatis and Herpes simplex II in Pregnancy women in Babylon Province. *Journal of Biology, Agriculture and Healthcare* 2 (10): 159-164.
16. Ariani S, Chaichi LMA. 2014. Study on the IGG and IGM antibodies rate of virus HSV, CMV and rubella in the women with recurrent pregnancy loss history. *Indian Journal of Fundamental and Applied Life Sciences* 4 (3): 212-222. who-announces-covid-19-outbreak-a-pandemic.
-

## Preventive Practice with Hepatitis-B Vaccine among the Lab Technicians of some Selected Hospitals in Dhaka City

Ahmed S U<sup>1</sup>, Mafiz F<sup>2</sup>

### Abstract

**Background:** Hepatitis B, an acute inflammatory disease of the liver or a form of viral hepatitis is caused by the hepatitis B virus (HBV). About 2 billion people worldwide have been infected with the virus and about 350 million live with chronic infection. Hepatitis B is the most important infectious occupational hazard which the lab technicians encounter. Healthcare personnel specially lab technicians represents a high risk population for HBV infection.

**Objective:** The study was conducted to determine the practice of Hepatitis B vaccination among lab technicians working in hospitals. The study also explores the reasons of not taking hepatitis B vaccine by a group of lab technicians.

**Methods:** It was a descriptive cross sectional study conducted through face to face interview using a semi-structured questionnaire among lab technicians in two hospitals of Dhaka city (Holy Family Red Crescent Medical College Hospital & City Dental College) from January to June 2010. A total 120 respondents were included purposively as respondents.

**Results:** Among 120 respondents, most(65.0%) of them received vaccine whereas 35.0% did not take any vaccine. Among the respondents who initiate vaccination about 48.1% finished taking the vaccines whereas 51.9% did not finish taking the vaccines. Negligence was found to be the major cause for not taking the vaccine and very few of them perceived that the prevalence of Hepatitis B remains high among lab technicians.

**Conclusion:** All hospital personnel including lab technicians should be trained up on the importance of Hepatitis-B vaccination with a view to self motivation and can also motivate their clients, relatives and general population. Scope of orientation courses at interval for the lab technicians can enhance motivation towards wider coverage of hepatitis B vaccination for this group of health care personnel in particular.

### Introduction

Viral Hepatitis is one of the major public health problems all over the world as it is silently gaining the momentum to cause an epidemic of vast magnitude. But there is no effective treatment available and only some preventive measure can protect the individual from contacting the disease to a longer extent. More than 2 billion people worldwide have evidence of past or current HBV infection and 350 million are chronic carriers of the virus, 80,000 people, mostly young adults, get infected with HBV. More than 11,000 people have to stay in hospital because of Hepatitis-B virus. Hepatitis- B virus causes 60 to 80 percent of all primary liver cancer, which is one of the three top causes of cancer death in East and SEAR, the Pacific basin and Sub - Saharan Africa. At least 1 million people with chronic HBV infection die each year from cirrhosis

and liver cancer. Hepatitis B is spreading fast in developing countries like Bangladesh but in the developed countries affects only certain risk group (Homosexual and drug addicts), living in large metropolitan areas<sup>1</sup>. As because there is no effective treatment Hepatitis- B and lengthy carrier state and ultimate fate is hepatocellular carcinoma and vaccination is the only way to prevent this. Being in the South- East region, it is likely Bangladesh having endemicity at more than eight percent<sup>2</sup>. Though national level study so far not has been carried out, a number of individual studies were carried out during the last decades. These studies are mostly Dhaka based and among different risk groups and shows 8% to 45% percent prevalence<sup>3</sup>. In Bangladesh, medical research regarding Hepatitis -B vaccine is limited. There is no true population based data available but HBV infection appears to be intermediately. The Hepatitis B vaccine is 95% effective and can be given safely to infants, children and adults. The vaccine can prevent infection even when it is applied before or within 7 days after exposure to infection. Adult people should get 3 doses of Hepatitis B vaccine Adolescents 2 to 15 years of age may need only two doses of Hepatitis - B vaccine, separated by 4-6 months<sup>4</sup>. Hepatitis B is an endemic disease throughout the world especially in tropical and developing countries and also in some region of Europe. Its prevalence varies from country to country and depends upon a complex mixture of behavioral, environmental and host factors. It is highest in countries or areas where socio-

1. Dr. Salah Uddin Ahmed

Assistant Professor, Department of Community Medicine  
Holy Family Red Crescent Hospital and Medical College, Dhaka

2. Dr. Ishrat Mafiz

Lecturer, Department of Community Medicine  
Holy Family Red Crescent Hospital and Medical College, Dhaka

### Correspondence to:

Dr. Salah Uddin Ahmed  
Assistant Professor, Department of Community Medicine  
Holy Family Red Crescent Hospital and Medical College, Dhaka.  
Email.dr\_salahuddin78@yahoo.com

economic status is lower, for example, China South East Asia and South America and it is lowest on countries or areas with high standard of living.<sup>5</sup>

## Materials and Methods

This was a descriptive cross sectional study conducted by face to face interview on the basis of a structured questionnaire duly pre-tested to determine the proportion of Hepatitis B vaccination among lab technicians in two hospitals during the period from January to June 2010. There were 120 lab technicians selected purposively from the Dhaka Holy Family Red Crescent medical College Hospital & City Dental College Hospital as respondents.

## Results

There was a prevalence of married person 65.0% than unmarried 35.0%. All respondents were well educated. 95.8% had honors degree and 4.2 % had master's degree. Table 2 indicates that among 120 respondents, most of them received vaccine (65.0 %) whereas 35.0% did not take any. Table 3 indicates that among 79 respondents, 38 (48.1%) finished taking the vaccines whereas 41(51.9%) did not finish taking the vaccines. *Vaccination awareness:* Table 4 indicates 66.2% (45) took their vaccine in 0, 1, 6 month. Table 5 indicates, 44(36.7%) of respondents thought prevalence of hepatitis is high among lab technicians. 63.3% didn't think so. In this study the reasons for not taking Hepatitis B vaccine were among 64%, 19%, 7%, 7% and 3% as negligence, others, high prize, don't felt needed and suspicious efficacy respectively (Fig 1).

**Table 1:** Distribution of the respondents according to socio-demographic variables (n=120)

Attributes	Frequency	Percentage
<b>Age group (In years)</b>		
≤ 20	7	5.8
21-30	83	69.2
31-40	29	24.2
> 40	1	0.8
Total	120	100.0
Mean(±SD)=26.6(±5.29) years		
<b>Gender</b>		
Male	54	44.20
Female	66	55.80
<b>Marital Status</b>		
Married	78	65.0
Unmarried	42	35.0
Total	120	100.0
<b>Educational qualification</b>		
Non institutional	4	3.3
HSC	15	12.5
Honors/masters	62	51.7
Others	39	32.5
Total	120	100.0
<b>Religion</b>		
Muslim	110	91.70
Hindu	7	5.8
Christian	2	2.5
others	1	0.83
Total	120	100.0

Table 1 shows among 120 respondents maximum (69.2%) were from the age group 21-30 years. Mean age of respondents was 26.6(±5.29) years. There were female 55.8% and male 44.2%. About 91.70% of respondents were Muslim, 5.8 % were Hindu and 2.5% were Christian.

**Table 2:** Distribution of respondents according to status of receiving vaccines of hepatitis B

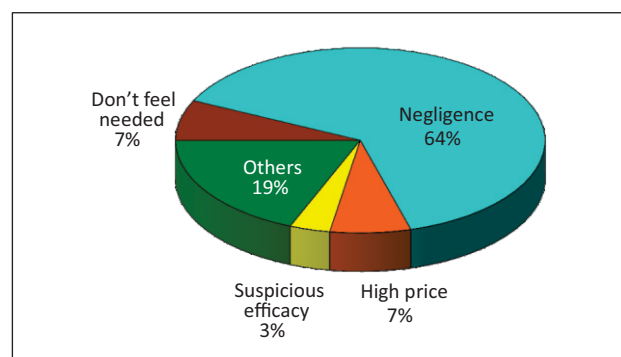
Status of receiving vaccines of hepatitis	Frequency	Percentage
Yes	78	65.0
No	42	35.0
Total	120	100.0

**Table 3:** Distribution of respondents according to finishing of doses of vaccines

Finishing of doses of vaccines	Frequency	Percentage
Yes	38	48.1
No	41	51.9
Total	79	100.0

**Table 4:** Distribution of respondents according to completion months of vaccine

Months of vaccine taken	Frequency	Percentage
0,1,2 month	1	1.5
0,1,6 month	45	66.2
Cannot remember	22	32.4
Total	68	100.0

**Figure1:** Distribution of respondents according to cause for not taking the vaccines**Table 5:** Respondents knowledge about prevalence of hepatitis B is high among lab technicians

Prevalence of hepatitis B is high among Lab technicians	Frequency	Percentage
Yes	44	36.7
No	76	63.3
Total	120	100.0

## Discussion

All the respondents knew about the availability of the hepatitis-B vaccine. This suggests a high awareness amongst technical staff of its importance, and is similar to, the findings of such a study done on Hepatitis B vaccination in the United kingdom<sup>9</sup>. About 37% of respondents thought prevalence of hepatitis is high among lab technicians. About 64% didn't think so. There were few causes of high prevalence of hepatitis B among lab technicians. In another

study in Ethiopia they found more than half (51%) of health professionals have never received hepatitis B vaccine. From health professionals who received the vaccine only 82 (58.6%) received the full course of the vaccine. Overall percentage of HPs in GUH who receive full course vaccination against HBV is 28.7%. Laboratory technologists are 12.5 times less likely to complete their HBV vaccination, that matches the sincereo to this study.<sup>6</sup> In a study in Sudan they found 97.2% of doctors, 98.6% of nurses, 94.8% of laboratory technicians and 95.7% of other paramedical knew that HBV transmitted via blood. For hygienic precautionary measure; the current study disclosed that 81% of the responding providers were routinely used to recap needles after use and only 33% of doctors were always wearing gloves. Gloves were not readily available in all units where there is a high risk of infectious occupational exposure. More than 50% ( $p < 0.001$ ) of health care workers were not vaccinated against HBV. Healthcare workers had poor knowledge about Universal Standard Precautions Guidelines, and do not fully appreciate their occupational risk regarding Hepatitis B infection which also resembles to current study.

## Conclusion

Negligence was found to be the major cause for not taking the vaccine and very few of them think that the prevalence of hepatitis B is high among lab technicians. Hospital personnel's including lab. Technicians should be trained up on the importance of Hepatitis-B vaccination with a view to self motivation. Scope of orientation courses at interval for the lab technicians can enhance motivation towards wider coverage of hepatitis B vaccination for this group of personnel. Further in depth study could help investigate to explain role of these factors. All health care personnel should be trained up so that they can save themselves and can also motivate their clients, relatives and general population

## References

1. Riihimaki H, Tolas, Videman T, Hanninen K. Hepatitis B carrier and occupation, 1989; 14:204-209.
2. Choudhury MR. The pathogenecity of hepatitis virus. J Med. microbiol. 1999; 15:428-430, 575-577.
3. Khan M, Ahmed N. Scroepidemiology of HBV & HCV Bangladesh, International Hepatology Communication 1996; 5:27-29
4. Ali M A. A study on selected epidemiological attributes of Hepatitis B patients admitted in two hospitals of Dhaka City, Dissertation 1995; 30-45.
5. Zhang H, Yin H. Risk factor acute hepatitis B and its progression to chronic hepatitis in Shanghai, China 2008; 57:1713-1720.
6. Hepatitis B Vaccination Status among Health Care Workers in a Tertiary Hospital in Ethiopia Mohammed Biset Ayalew<sup>1</sup> and Boressa Adugna Horsa<sup>1</sup> Volume 2017 | Article ID 6470658

- 
7. Knowledge, attitude and practice of health care workers toward Hepatitis B virus infection, S H Bakry, AF Mustafa ,Sudan July 2012 The International journal of risk & safety in medicine 24(2):95-102 DOI:10.3233/JRS-2012-0558
  9. Baxter DN, Mohan A. Acute hepatitis B infection in Stock port 1994;10(4):298-305.
  10. Ahmed Q. HBsAg amongst unscreend operated patient;Bangladesh medical Res.Council Bull1991;7 (1):11-15



# Characterizing Corona Virus Disease 2019 (COVID 19)

Tarafdar MA

## Abstract

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a highly transmissible and pathogenic coronavirus that emerged in late 2019 and has caused a pandemic of acute respiratory disease, 'coronavirus disease 2019' (COVID-19), which threatens human health and public safety. Populations with comorbidities, such as cerebrovascular and cardiovascular diseases, hypertension, COPD, and renal disease are most at risk of dying from COVID-19. It is also evident that comorbidities have definite impact on the severity of COVID-19. The varied clinical manifestations of COVID-19 with its rapid human-to-human transmission throughout the world resulted in high rates of mortality rate in a short time. The epidemiology and the characteristics of COVID-19 patients in Bangladesh need to have a proper insight into the natural history, patho-physiology and patterns in progression of the disease.

**Keywords:** SARS, COVID-19, COPD

## Introduction

Currently, the world is facing a serious threat of public health due to severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) causing 'corona virus disease 2019' (COVID-19), a highly infectious transmissible disease, which was declared a pandemic by the World Health Organization (WHO) on March 11, 2020.<sup>1</sup>

31<sup>st</sup> December 2019 Wuhan Municipal Health Commission, China, reported a cluster of cases of pneumonia in Wuhan, Hubei Province. A novel coronavirus was eventually identified, subsequently on 4<sup>th</sup> January 2020 WHO reported on social media that there was a cluster of pneumonia cases with no deaths in Wuhan, Hubei province. On 5<sup>th</sup> January 2020, WHO published the first Disease Outbreak News on the new virus and on 12<sup>th</sup> January 2020, China publicly shared the genetic sequence of COVID-19.<sup>2</sup>

The first confirmed case of coronavirus disease 2019 (COVID-19) in the US was reported from Washington State on January 31, 2020.<sup>3</sup> Bangladesh had its first three confirmed cases of COVID 19 on March 8, 2020; of these two returned from Italy and the third was a member of one of the traveler.<sup>4</sup>

Community participation is required for effective pandemic management and prevention of community transmission. Although COVID-19 has unique character, clinical manifestation varied from country to country. Despite of preventive measures taken by the governments of high-income countries, a number of European countries and the USA have been seriously hit by COVID-19 pandemic. However, countries such as Bangladesh and Egypt and some low and middle-income countries reported fewer identified cases.<sup>5</sup>

## The COVID 19

Some individuals who are infected do not develop any symptoms at all, and about 80% of positive cases recover from the disease without any treatment.<sup>6</sup> The varied clinical manifestations of COVID-19 with its rapid human to human transmission throughout the world resulted in high mortality rate in a short time.<sup>7</sup>

The Centers for Disease Control and Prevention (CDC, 2020) describes the characteristics of people who are at risk of suffering severe illness from COVID-19. The characteristics are people aged over 65 years, people living in a long-term care facility, people with asthma, diabetes, kidney disease, liver disease, or heart disease, people who have immunodeficiency as a result of disease and people who have unhealthy behavior, such as smoking.<sup>8</sup>

It is observed in several studies that moderate COVID-19 was more prevalent than severe and critical COVID-19 in patients with one or more comorbidities.<sup>9,10</sup> COVID-19 patients with co morbidities had worse clinical outcomes as compared with those without any comorbidity. The higher the number of comorbidities, the greater was the risk of serious adverse outcomes.<sup>11</sup> More than one third of patients had diverse comorbidities including DM, HTN, COPD and CHD. Mortality outcome was significantly associated with the elderly and having comorbidity. COPD and elderly were significantly associated with the not-cured outcome of morbidity.<sup>12</sup>

COVID-19 has a wide range of clinical presentation, from asymptomatic infection to mild (40%), moderate (40%) and severe disease (15%) that requires oxygen support and only 5% are critical cases.<sup>13</sup> The majority of critical cases occur in older ( $\geq 60$  years) or co morbid individuals.<sup>14</sup> In a study it was observed that adult patients especially the economically productive age group were mostly affected followed by elderly population.<sup>15</sup> Older patients, especially those 65 years old and above with comorbidities have an

## Correspondence to:

Prof. Dr. Monowar Ahmad Tarafdar  
Professor and Head, Department of Community Medicine  
ZH Sikder Women's Medical College, Dhaka.  
Email: babla762@yahoo.com



increased admission rate into the intensive care unit (ICU) and mortality from the COVID-19 disease.<sup>16</sup> In addition to age, biological sex and ethnicity have also been implicated in COVID-19 outcomes.<sup>17</sup> For both patients discharged alive and those who died, the percentage of patients who were treated in the ICU or received invasive mechanical ventilation was increased for the 18-to-65 age group compared with the older-than-65 years age group.<sup>18</sup> In studies individual's age was found to have significant association with symptomatic cases.

Higher proportions of asymptomatic cases were found in the young age.<sup>19</sup> It was found that patients with age  $\geq 50$  years confirmed with SARS-CoV-2 infection were associated with 15.4-folds significantly increased risk of mortality as compared to patients with age  $< 50$  years.<sup>20</sup> Evidence from the global outbreak has demonstrated that individuals with pre-existing comorbidities are at a much greater risk of dying from COVID-19.<sup>21</sup>

The incubation period of COVID-19 based on the experience in China, has been estimated to be a median of 5.1 days. The incubation period for COVID-19 ranged 2 days to 14 days and it is different for different age groups; It is estimated about 95% will show symptoms within 14 days.<sup>22</sup> Prognosis of COVID 19 for people having underlying morbidity of any age, such as hypertension and diabetes shown to be bad.<sup>23</sup>

Findings from study by Irin Hossain et al suggest that patients having comorbidities had greater severity due to COVID 19 and a greater number of comorbidities correlated with greater disease severity of COVID-19. It is advisable for better protection to be given to the patients with COVID-19 who had comorbidities upon confirmation of the diagnosis.<sup>24</sup>

COVID 19 patients with acute respiratory distress syndrome and respiratory failure may be linked to a prothrombotic coagulopathy and autopsy revealed dispersed microthrombi in the pulmonary vasculature, proving an occlusive etiology of respiratory failure.<sup>25</sup>

Prevalent cardiovascular disease is associated with higher mortality and severity of COVID-19; the association between hypertension and COVID-19 mortality and severity could be partly explained by the increased age and higher prevalence of cardiovascular disease.<sup>26</sup>

Current evidence from China and the US suggests that comorbidities such as hypertension, diabetes, obesity, chronic obstructive pulmonary disease (COPD) and cerebrovascular disease increase the risk of severity and death from COVID-19.<sup>27,28</sup> Among laboratory-confirmed cases of Covid-19, patients with any comorbidity yielded poorer clinical outcomes than those without. A greater number of comorbidities also correlated with poorer clinical outcomes. A thorough assessment of comorbidities may help establish risk stratification of patients with Covid-19 upon hospital admission.<sup>29</sup> The highest odds of

fatality risk were detected in patients with COVID-19, CVD and diabetes. The risk increased many folds when CVD and diabetes coexisted in patients.<sup>30</sup> Some published work found that COVID-19 has the potential to trigger the onset of different types of diabetes. The prevalence of diabetes in patients with COVID-19 were 9.8% in Wuhan, 9.7% in China, 8.9% in Italy.<sup>31</sup> The immune system plays a vital role during COVID-19, and the degree of immune dysfunction correlates with disease severity.<sup>32</sup> As lymphopenia is regarded as a major risk factor for developing severe COVID-19, individuals having autoimmune condition may be perceived as high risk.<sup>33</sup>

## Conclusion and recommendations

It is recommended that community participation as well as empowerment needed and the service delivery should be emphatic to the high risk group having comorbidities and that identification through screening be done to identify undiagnosed cases. Individual with comorbidities should be encouraged to use all recommended protective measures.<sup>34</sup>

Government should initiate appropriate far-reaching program of health education focusing on knowledge and preventive behaviors towards COVID-19 through community participation. The strategies to combat COVID-19 require multidisciplinary as well as individual involvement to control and prevent the communicable disease outbreak in particular COVID 19, for which health education is essential.<sup>35</sup>

The epidemiology and the characteristics of COVID-19 patients in Bangladesh need to have a proper insight into the natural history, patho-physiology and patterns in progression of the disease. It is essential to examine these aspects and factors related to the outcomes of COVID-19 to implement appropriate measures to prevent and treat.

## References

1. Cucinotta D, Vanelli M. WHO Declares COVID-19 a Pandemic. 2020 Mar 19;91(1):157-160. DOI: 10.23750/abm.v9i1i.9397
2. WHO. Archived: WHO Timeline - COVID-19, 27 April 2020. Available from: <https://www.who.int/news/item/27-04-2020-who-timeline---covid-19>
3. Richardson S et al. Presenting Characteristics, Comorbidities, and Outcomes Among 5700 Patients Hospitalized With COVID-19 in the New York City Area; JAMA. 2020;323(20):2052-2059. doi:10.1001/jama.2020.6775
4. MT Islam, Talukder AK, Siddiqui MN, and Islam T. Tackling the COVID-19 pandemic: The Bangladesh perspective; J Public Health Res. 2020 Oct 14; 9(4): 1794. Available from: doi: 10.4081/jphr.2020.1794
5. Ali M, Knowledge, attitude, practice and fear of COVID-19: A cross-cultural study. i: <https://doi.org/10.1101/2020.05.26.20113233>

6. WHO. Q&A on coronaviruses (COVID-19). World Health Organization. 2020., Available from URL: <https://www.who.int/news-room/q-a-detail/q-a-coronaviruses>.
7. Cucinotta D, Vanelli M. WHO declares COVID-19 a pandemic. *Acta Bio Medica: AteneiParmensis*. 2020;91(1):157.
8. Mohsin F M. Association between Smoking and COVID-19 Severity: Evidence from Bangladesh. *Journal of Multidisciplinary Healthcare* 2021;14 1923-1933
9. Hasan M J, Anam A M, Huq S M R and Rabbani R. Impact of Comorbidities on Clinical Outcome of Patients with COVID-19: Evidence from a Single-center in Bangladesh; *Health Scope*. 2021 February; 10(1):e109268. doi: 10.5812/jhealthscope.109268.
10. Paul N, Azad NA , Parveen R , Saha TK, Hoque M, Deb SR, Haque A, Barman TK, Matin MHA, Bhuyian RZ, Afrin S, Yasmin R. Clinical profile of first 100 cases of COVID-19 in a COVID-dedicated hospital of Bangladesh, *BIRDEM Med J* 2020; 10, COVID Supplement: 18-22.
11. Ye C, Zhang S, Zhang X, Cai H, Gu J, Lian J, et al. Impact of comorbidities on patients with COVID-19: A large retrospective study in Zhejiang, China; <https://doi.org/10.1002/jmv.26183>
12. Islam MZ et al (2020). Risk factors associated with morbidity and mortality outcomes of COVID-19 patients on the 28th day of the disease course: a retrospective cohort study in Bangladesh. *Epidemiology and Infection* 148, e263, 1-8. Available from: <https://doi.org/10.1017/S0950268820002630>
13. World Health Organization (2020) Clinical Management of COVID-19: Interim Guidance. 27 May 2020. World Health Organization. <https://apps.who.int/iris/handle/10665/332196>.
14. Day M. Covid-19: four fifths of cases are asymptomatic, China figures indicate. *BMJ*. (2020) 369:m1375. doi: 10.1136/bmj.m1375
15. Bodiuzzaman M M. and Hossain M I. Presentation of COVID-19 Disease and the Impact of Patient's Comorbidities on Its Hospital Outcome: An Observational Study in a COVID-19 Dedicated Hospital. *European Journal of Medical and Health Sciences*. 13(2): 138-142. DOI: <http://dx.doi.org/10.24018/ejmed.2021.3.2.788>
16. Adekunle Sanyaolu. Comorbidity and its Impact on Patients with COVID-19, *SN Comprehensive Clinical Medicine*. Available from: URL: <https://doi.org/10.1007/s42399-020-00363-4>
17. Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet*. (2020) 395:507-13. doi: 10.1016/S0140-6736(20)30211-7
18. Richardson S, Hirsch JS, Narasimhan M, et al. Presenting Characteristics, Comorbidities, and Outcomes Among 5700 Patients Hospitalized With COVID-19 in the New York City Area. *JAMA*. 2020;323(20):2052-2059. doi:10.1001/jama.2020.6775
19. Mannan A, et al. A multi-centre, cross-sectional study on coronavirus disease 2019 in Bangladesh: clinical epidemiology and short-term outcomes in recovered individuals. *New Microbes and New Infections* 40(10223):100838. DOI: 10.1016/j.nmni.2021.100838
20. Biswas M, Rahaman S, Biswas TK, Haque Z and Ibrahim B. Association of Sex, Age, and Comorbidities with Mortality in COVID-19 Patients: A Systematic Review and Meta-Analysis, *Intervirology* 2021; 64 (1):36-47. Available from: URL: <https://doi.org/10.1159/000512592>
21. Yang J, Zheng Y, Gou X, Pu K, Chen Z, Guo Q, et al. Prevalence of comorbidities in the novel Wuhan coronavirus (COVID-19) infection: a systematic review and meta-analysis. *Int J Infect Dis*. (2020) 94:91-5. doi: 10.1016/j.ijid.2020.03.017
22. CDC. Interim Clinical Guidance for Management of Patients with Confirmed Coronavirus Disease (COVID-19). Available from: URL: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html>
23. Singh AK, Gupta R, Ghosh A, Misra A. Diabetes in COVID-19: prevalence, pathophysiology, prognosis, and practical considerations. *Diabetes Metab Syndr*. Jul-Aug 2020;14(4):303-310. doi: 10.1016/j.dsx.2020.04.004. Epub 2020 Apr 9.
24. Hossain I et al. Co morbidity and its Impact on COVID-19 Affected Patients in COVID-19 Dedicated Hospital of Bangladesh; *Bangladesh Med J*. 2020 Jan; 49(1)
25. Wang J, Hajizadeh N, Moore EE, McIntyre RC, Moore PK, et al. Tissue plasminogen activator (tPA) treatment for COVID-19 associated acute respiratory distress syndrome (ARDS): a case series. *J Thromb Haemost*. 2020. Available from: URL: <https://doi.org/10.1111/jth.14828>
26. Sisniegues CEL, Espeche WG, Salazar MR. Arterial hypertension and the risk of severity and mortality of COVID-19; *European Respiratory Journal* 2020; Available from: URL: DOI: 10.1183/13993003.01148-2020
27. Guan WJ, Liang WH, Zhao Y, Liang HR, Chen ZS, Li YM, et al. Comorbidity and its impact on 1590 patients with COVID-19 in China: a nationwide analysis.

- 
- EurRespir J. 2020 May 14; 55(5):2000547. Available from: <https://doi.org/10.1183/13993003.00547-2020>
28. Richardson S, Hirsch JS, Narasimhan M, Crawford JM, McGinn T, Davidson KW et al. Presenting Characteristics, Comorbidities, and Outcomes Among 5700 Patients Hospitalized With COVID-19 in the New York City Area. *JAMA*. 2020; 323(20):2052-2059. Available from: <https://doi.org/10.1001/jama.2020.6775>
  29. Guan W-jie, Liang W-hua, Zhao Y, et al. Comorbidity and its impact on 1590 patients with Covid-19 in China: A Nationwide Analysis. *EurRespir J* 2020; <https://doi.org/10.1183/13993003.00547-2020>.
  30. Sharif N. Prevalence and impact of diabetes and cardiovascular disease on clinical outcome among patients with COVID-19 in Bangladesh; *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 15 (2021) 1009e1016. Available from: DOI: 10.1016/j.dsx.2021.05.005
  31. Apicella M, Campopiano MC, Mantuano M, Mazoni L, Coppelli A, Del Prato S. COVID-19 in people with diabetes: understanding the reasons for worse outcomes. *Lancet Diabetes Endocrinol* 2020;8: 782e92. Available from: [https://doi.org/10.1016/S2213-8587\(20\)30238-2](https://doi.org/10.1016/S2213-8587(20)30238-2).
  32. Tan L, Wang Q, Zhang D, Ding J, Huang Q, Tang Y-QQ, et al. Lymphopenia predicts disease severity of COVID-19: a descriptive and predictive study. *Signal Transduct Target Ther*. (2020) 5:33. doi: 10.1038/s41392-020-0148-4
  33. Callender L A, Curran M, Bates S M, Mairesse M, Weigandt J and Betts C J. The Impact of Pre-existing Comorbidities and Therapeutic Interventions on COVID-19; *Front. Immunol.*, 11 August 2020. Available from: <https://doi.org/10.3389/fimmu.2020.01991>
  34. World Health Organization. Coronavirus disease (COVID-19) advice for the public [Internet]. 2020. Available from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public>
  35. Hosen I et al. Knowledge and preventive behaviors regarding COVID-19 in Bangladesh: A nationwide distribution, *PLOS ONE*, May 3, 2021. Available from: <https://doi.org/10.1371/journal.pone.0251151>
-

# A Case Report: An Unusual Presentation of Takayasu's Arteritis

Rashid M H<sup>1</sup>, Rana M S<sup>2</sup>, Sajib S I<sup>3</sup>, Bhuiyan M S R<sup>4</sup>, Shawon M H H<sup>5</sup>, Saha T<sup>6</sup>

## Abstract

Takayasu's arteritis (TA) is a chronic granulomatous vasculitis of unknown cause. It is characterized by stenosis, occlusion and aneurysm of large elastic arteries. Commonly arch of aorta and its branches. It mainly affects young women of Asia, Middle East and South America. The presented report is the case of a young woman of 18 years age from Faridpur, Bangladesh having the atypical and uncommon features of Takayasu's arteritis. Her complaints were fever, weakness of left hand, pain over back of chest and neck and dizziness with vomiting for several times. The report also covered details of case history, selected investigations, and treatment modalities including author's views in terms of discussion and conclusion in particular.

## Introduction

Takayasu's arteritis (also known as, "aortic arch syndrome," "nonspecific aortoarteritis," and "pulseless disease") is a form of large vessel granulomatous vasculitis with massive intimal fibrosis and vascular narrowing, most commonly affecting young or middle-age women of Asian descent, though anyone can be affected<sup>1</sup>. It mainly affects the aorta (the main blood vessel leaving the heart) and its branches, as well as the pulmonary arteries. Females are about 8–9 times more likely to be affected than males. There are various clinical presentations of TA. Some time patient's presentations are nonspecific. This particular patient presented in an uncommon way.

## Case History

A female patient 18 years of old, normotensive, non-diabetic, non-smoker, hailing from Digholia, Modhukhali, Faridpur got admitted in Diabetic Association Medical College Hospital on 31.03.2019 at 1.30 PM presented with low grade

fever for one and half months, it was intermittent in nature, starts at evening without chill and rigor. It then subsided with sweating and after taking Paracetamol at night. She had no cough, chest pain, Haemoptysis, and had significant weight loss associated with fever. She also had weakness of left hand associated with claudication pain on raising left hand over 10 to 15 minutes of manual work and that subsided after taking rest. For last 1 month she had complains of pain on the back of chest and neck without any radiation on flexion of neck. She also complained for dizziness for last 15 days associated with vomiting for several times. Dizziness increased on rising on sitting from supine position associated with feeling of darkness which relieved by lying flat.

She was diagnosed as a case of rheumatic fever 10 years ago and treated with PHENOXYMETHYL PENICILLIN but there is no clinical evidence for that diagnosis. She admitted in this hospital 3 months ago and diagnosed as Urinary Tract Infection and treated with NITROFURANTOIN. She is a college student. She got married for 2 years with sedentary life style. She had no history of smoking, betel nut or tobacco leaf or gul intake. No one of her family member was suffering from such type of disorder. She was poor, drinks tube well water and uses sanitary latrine, lives in a tin shaded house with ill ventilation. She was immunized as per EPI schedule. There was no history of recent travelling to hill track area or north Bengal. Her menstrual cycle was regular with normal duration and flow. She has leucorrhea and valval itching.

Patient was severely anemic and mildly emaciated. Her pulse and blood pressure was not recordable on the left arm and hand. But on the right upper limb B.P. was 120/80 mm of Hg and pulse 88 beat per minute & regular. Carotid bruit was present over both right and left common carotid artery and also left sub-clavian artery. Movement of left shoulder was restricted not above the shoulder, and was painful. Examination of other systems revealed no abnormality.

Her laboratory investigation revealed Hb-8 gm/dl, ESR- 85 mm in 1<sup>st</sup> hour, TC of WBC- 12.67<sup>^</sup>3/ul, Polymorph 68%. C-Reactive Protein (CRP) was normal. Duplex color doppler study of arch of aorta revealed stenosis of left common carotid artery, left subclavian artery and right common

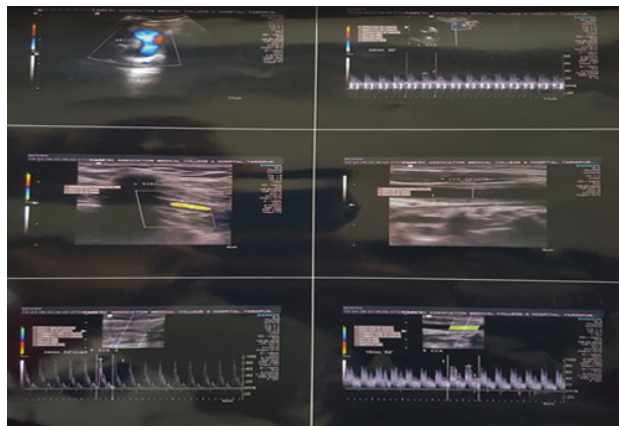
1. Professor Dr. Md. Harunur Rashid  
Professor, Department of Medicine  
Diabetic Association Medical College Hospital, Faridpur
2. Dr. Md. Sohel Rana  
Assistant Registrar, Department of Medicine  
Diabetic Association Medical College Hospital, Faridpur
3. Dr. Shafiqul Islam Sajib  
Assistant registrar, Department of Medicine,  
Diabetic Association Medical College Hospital, Faridpur
4. Dr. Md. Shahidur Rahman Bhuiyan  
Assistant Professor, Department of Medicine  
Diabetic Association Medical College Hospital, Faridpur
5. Dr. Md. Hashibul Hasan Shawon, Medical officer, Department of Medicine, Diabetic Association Medical College Hospital, Faridpur
6. Dr. Tias Saha  
Intern Doctor, Diabetic Association Medical College Hospital, Faridpur.

## Correspondence to:

Professor Dr. Md. Harunur Rashid  
Professor, Department of Medicine  
Diabetic Association Medical College Hospital, Faridpur.  
Email: harunur.damcf@gmail.com



carotid artery. Findings were consistent with Takayasu's Arteritis. Patient received prednisolone and methotrexate on diagnosis. After one week she was much improved.



**Figure1:** Duplex colour doppler study of arch of aorta and its branches shows significant narrowing ofRCCA, LCCA, Left subclavian artery consistent with Takayasu's arteritis.

## Discussion

Takayasu's arteritis has been reported from all over the world, there is a wide variation in its prevalence different countries. It is predominant in Asia, Middle East and South American countries. The incidence rate of Takayasu's arteritis in Japan is 4.2 persons per 100000 populations. Takayasu's arteritis affects healthy women, the average age of onset in Japanese and Indian patient being 15-35 years. TA is a form of large vessel granulomatous vasculitis<sup>2-4</sup> with massive intimal fibrosis and vascular narrowing.

Although the cause of Takayasu's arteritis is unknown, the condition is characterized by segmental and patchy granulomatous inflammation of the aorta and its major derivative branches. This inflammation leads to arterial stenosis, thrombosis, and aneurysms.<sup>3</sup> There is irregular fibrosis of the blood vessels due to chronic vasculitis, leading to sometimes massive intimal fibrosis (fibrosis of the inner section of the blood vessels).<sup>4,5</sup>

In the Western world, atherosclerosis is a more frequent cause of obstruction of the aortic arch vessels than TA. TA is similar to other forms of vasculitis, including giant cell arteritis which typically affects older individuals.<sup>2</sup> Due to obstruction of the main branches of the aorta, including the left common carotid artery, the brachiocephalic artery, and the left subclavian artery, Takayasu's arteritis can present as pulseless upper extremities (arms, hands, and wrists with weak or absent pulses).<sup>6,7</sup>

The genetic contribution to the pathogenesis of Takayasu's arteritis is supported by the genetic association with HLA B\*52.<sup>8</sup> In addition, a genetic association was identified and confirmed between Takayasu's arteritis and the FCGR2A/FCGR3A locus on chromosome 1 (rs10919543, OR=1.81,

$p=5.89 \times 10^{-12}$ ). The risk allele at this locus results in increased mRNA expression of FCGR2A. A genetic association between IL12B and Takayasu's arteritis was established.<sup>9</sup>

Patients are usually presented with acute and chronic symptoms. In the acute stage the symptoms of Takayasu's arteritis are usually nonspecific and generalized, including fever, easy fatigability, general malaise, neck pain, weight loss, and arthralgia. Faintness and/or dizziness are sometimes reported, perhaps due to hypersensitivity of the baroreceptors in the aortic arch leading to hypotension.

In the chronic stage most patients with Takayasu's arteritis present with features related to specific vascular lesions, although they may also have the constitutional symptoms described above. In East Asian countries the condition affects the aortic arch most frequently, hence typical complaints relate to ischaemia of the brain, eyes, or arms, namely dizziness, syncope, visual disturbance, and easy fatigability of the arms, with pain due to intermittent claudication.

Occasionally TA has some atypical presentation. systemic illness with signs and symptoms of malaise, fever, night sweats, weight loss, joint pain, fatigue, and fainting. Fainting may result from subclavian steal syndrome or carotid sinus hypersensitivity.<sup>4</sup> There is also often anemia and marked elevation of the ESR or C-reactive protein (nonspecific markers of inflammation). The initial "inflammatory phase" is often followed by a secondary "pulseless phase".<sup>2</sup> The "pulseless phase" is characterized by vascular insufficiency from intimal narrowing of the vessels manifesting as arm or leg claudication, renal artery stenosis causing hypertension, and neurological manifestations due to decreased blood flow to the brain.<sup>10</sup>

This particular patient presented in the same atypical way, thus consulted with different specialist. After diagnosing her as a case of Takayasu's arteritis and treating her with Prednisolone and Methotrexate a dramatical response was found.

## Conclusion

Some time in case of Takayasu's Arteritis early diagnosis is difficult especially when presented atypically. Therefore, careful history taking and clinical examination should be considered important towards a diagnosis.

## References

1. James, William D.; Berger, Timothy G.; et al. *Andrews' Diseases of the Skin: clinical Dermatology*. Saunders Elsevier. 2006, ISBN 978-0-7216-2921-6.
2. American College of Physicians (ACP). Medical Knowledge Self-Assessment Program (MKSAP-15): Rheumatology. "Systemic Vasculitis."Pg. 65-67. 2009, ACP." American College of Physicians | Internal Medicine | ACP". Archived from the original on 2010-10-30. Retrieved 2010-11-28.



3. Takayasu Arteritis - Pediatrics at eMedicine
4. Shikino, Kiyoshi; Masuyama, Takako; Ikusaka, Masatomi. "FDG-PET of Takayasu's Arteritis". *Journal of General Internal Medicine*. 2014, 29 (7): 1072-1073. doi: 10.1007/s11606-013-2695-7. ISSN 0884-8734. PMC 4061346. PMID 24408276.
5. John Barone, M.D. USMLE Step 1 Lecture Notes. "Vascular Pathology." 2008, Kaplan Inc. pg 101.
6. Milan B, Josip K. "Ocular manifestations of the aortic arch syndrome (pulseless disease; Takayasu's disease) (Translated from French)". *Annales d'Oculistique*. 1997, 200 (11): 1168-79. PMID 6079381.
7. Sherif A, Sara, Tok O, Ozge, Özgür T, Goktekin, Omer; Kilic, Dogu I "Coronary Artery Aneurysms: A Review of the Epidemiology, Pathophysiology, Diagnosis, and Treatment". *Frontiers in Cardiovascular Medicine*. 4:24. doi:10.3389/fcvm. 2017.00024. PMC 5418231. PMID 28529940.
8. Saruhan-Direskeneli, Güher; Hughes, Travis; Aksu, Kenan; Keser, Gokhan; Coit, Patrick; Aydin, Sibel Z.; Alibaz-Oner, Fatma; Kamali, Sevil; Inanc, Murat; Carette, Simon; Hoffman, Gary S.; Amr H. (Jul 2, 2013). "Identification of Multiple Genetic Susceptibility Loci in Takayasu Arteritis". *American Journal of Human Genetics*. 93 (2): 298-305. doi:10. 1016/j.ajhg. 2013. 05.026. PMC 3738826. PMID 23830517.
9. Renauer PA, Saruhan-Direskeneli G, Coit P, Adler A, Aksu K, Keser G, Alibaz-Oner F, Aydin SZ, Kamali S, Inanc M, Carette S, Cuthbertson D, Hoffman GS, Akar S, Onen F, Akkoc N, Khalidi NA, Koenig C, Sawalha AH (27 April 2015). "Identification of Susceptibility Loci in IL6, RPS9/LILRB3, and an Intergenic Locus on Chromosome 21q22 in Takayasu Arteritis in a Genome-Wide Association Study". *Arthritis & Rheumatology*. 67 (5): 1361-8. doi:10.1002/art.39035. PMC 4414813. PMID 25604533.
10. Arend WP. et al. The American College of Rheumatology; Criteria for the determination of Takayasu's arteritis. *Arthritis Rheum*. 1990, 33. 112

# Information for Authors

## General Information

### Aims & Scope:

The Diabetic Association Medical College journal is a scientific journal dealing with clinical medicine, basic sciences, epidemiology, public health and various health care specialities. It is an official organ of Diabetic Association Medical College and going to be published bi-annually (January and July).

The journal publishes articles of authors from any part of the globe/country. It intends to publish the highest quality material on all aspects of medical science. It accepts original research articles, review articles, short communications, case reports and letters to editor. In addition, it provides readers with opinion regarding the articles published in the journal. Complimentary print copies of the journal are sent to libraries of all medical colleges and other relevant academic institutions in the country.

### Instruction to authors:

Manuscript written in English on bio-medical topics will be considered for publication provided these have not been published previously and are not under consideration for publication elsewhere.

### Conditions for manuscript submission:

- All manuscripts will be subjected to peer and editorial review.
- Accepted manuscript will become the property of Diabetic association medical college journal.
- The author should obtain written permission from appropriate authority if the manuscript contains any table, data or illustration previously published in other journals. The letter of permission should be submitted with manuscript.
- If the photographs are identified, permission from the patient or parents/guardians should accompany the manuscript. Otherwise identity will be blackened out.
- The materials submitted for publication may be in the form of an original research, review article, special article, a case report, recent advances, new techniques, brooks review on clinical/medical education, adverse drug reaction or a letter to the editor.
- The authors should sign a covering letter mentioning that final manuscript has been seen and approved by all authors. Relevance and contributions of coauthors should be clearly mentioned by principal author. Irrelevant person or without any contribution should not be entitled as coauthors.
- All rights are reserved to the journal. No part may be reproduced or transmitted in any form or by any means without written permission form editors.

- We strongly encourage authors to pay careful attention to the instruction to the “Instruction for authors” which will be found in this section of each issue.
- The editorial board reserves the right to edit and if necessary, shorten any material accepted for publication. All manuscript will go through a peer-review process.
- Editors are not responsible for currier/postal failure.

### Manuscript preparation:

- It should be typed in English and on one side of A4 (290×210 cm) size white paper, using Times New Roman font size 12, with double space throughout. All pictures should be in 300 dpi.
- The widely accepted “Vancouver style” should be followed in reference section.
- There should be one original, two paper copies and one IBM Compatible electronic copy.
- There should be a margin of 2.5 cm at both top and bottom and 1.2 cm left and right.
- Pages should be numbered in English numerical at the upper right hand corner of each page.
- Each of the following section should be in separate page:
  - Title page
  - Abstract
  - Text-Introduction, Materials & Methods, Result & Discussion
  - References
  - Tables and legends
  - Acknowledgement

### Title page:

Title page should include the title of the paper, name of the authors, name of the department they worked, email address & phone number. Title should be concise, informative and self-explanatory (not exceed 100 characters). Title should provide a reasonable indications of the contents of the paper.

### Abstract:

It should be structured as introduction with objectives, materials and methods, result, discussion with conclusion including key words, number of figures, tables, references & correspondence (about 350 words maximum).

### Text:

The text should be presented in the form of-

- **Introduction:** Provide background of the study. It should be very specific & reasoning. It should include

the purpose of the article. The rationale for the study or observation should be summarized. Only strictly pertinent references should be cited. Data or conclusion from the work being reported should not be presented in the introduction.

- **Materials and Methods:** Provide technical information about the study. Study design & sampling method should be mentioned. Describe your section of subjects (patients or laboratory animals) clearly. Consent from respondents/patients should be taken in a form before interview/study. All drugs & chemicals used should be identified precisely, including generic name, dose and route of administration. For all quantitative measurements SI unit should be used.
- **Results:** This should be presented in logical sequence in the text, table and illustration, for statistical analysis standard procedure should be maintained.
- **Discussion:** Author's comment on the result supported with contemporary references including arguments and analysis of identical work done by other workers may be elaborately discussed. A summary is not required. Describe the implication of the findings for future research.
- **Conclusion:** Link the conclusion with the goals of the study but avoid unqualified statements and conclusion not completely supported by your data. Recommendation when appropriate may be included.
- **Tables:** Number and titles of tables to be clearly written in Arabic numerical.
- **Source:** Source of illustrations & figures should be mentioned.
- **Abbreviations and symbols:** Use only standard abbreviations, avoid abbreviation in the title of the article.

### Acknowledgement:

1. Contributions that need acknowledgement but do not justify authorship, such as general support by a dept. or dept. chairman.
2. Acknowledgement of technical help.
3. Acknowledgement of financial & material support.
4. Author should obtain written permission for everyone acknowledged by name.

### Reference:

These should be given in the text using the Vancouver system. They should be numbered consecutively in the order in which they first appear in the text using superscript. If a reference is cited more than once the same number should be used each time. References cited only in tables and figures and not in the text should be numbered in sequence from the last number used in the text and in the order of mention of the individual tables and figures in the text. At the end of the paper, on a page (s) separate from the

text, references should be listed in numerical order. The journal adheres closely to the Vancouver style of references (See [http://www.nlm.nih.gov/bsd/uniform\\_requirements.html](http://www.nlm.nih.gov/bsd/uniform_requirements.html), updated 2013).

Sample references are given below-

#### 1. Standard Journal Article

List the first six authors followed by et al:

Halpern SD, Ubel PA, Caplan AL. Solid-organ transplantation in HIV-infected patients. *N Engl J Med*. 2002 Jul 25;347(4):284-7

As an option, if a journal carries continuous pagination throughout a volume (as many medical journals do) the month and issue number may be omitted:

Halpern SD, Ubel PA, Caplan AL. Solid-organ transplantation in HIV-infected patients. *N Engl J Med*. 2002;347:284-7

More than six authors:

Rose ME, Huerbin MB, Melick J, Marion DW, Palmer AM, Schiding JK, et al. Regulation of interstitial excitatory amino acid concentrations after cortical contusion injury. *Brain Res*. 2002; 935(1-2):40-6

Optional addition of a database's unique identifier for the citation:

Halpern SD, Ubel PA, Caplan AL. Solid-organ transplantation in HIV-infected patients. *N Engl J Med*. 2002 Jul 25;347(4):284-7. PubMed PMID: 12140307

Organization as author:

Diabetes Prevention Program Research Group. Hypertension, insulin's and proinsulin In participants with impaired glucose tolerance Hypertension. 2002;40(5):679-86

No author given:

21st century heart solution may have a sting in the tail *BMJ*. 2002;325(7357):184

Volume with supplement:

Geraud- G, Spierings EL, Keywood C. Tolerability and safety of frovatriptan with short- and long-term use for treatment -of migraine and in comparison with sumatriptan. *Headache*. 2002;42 Suppl 2:S93-9.

Issue with supplement:

Glauser TA. Integrating clinical trial data into clinical practice. *Neurology*. 2002;58(12 Suppl 7):S6-12.

Article published electronically ahead of the print version:

Yu WM, Hawley TS, Hawley RG, Qu CK. Immortalization of yolk sac-derived precursor cells. *Blood*. 2002 Nov 15; 100(10):3828-31. Epub 2002 Jul 5.

#### 2. Books and Other Monographs

Personal author(s):

Murray PR, Rosenthal KS, Kobayashi GS, Pfaller MA. *Medical microbiology*. 4th ed. St. Louis: Mosby, 2002.

### 3. Other Published Material

#### Newspaper article:

Tynan T. Medical improvements lower homicide rate: study sees drop in assault rate. The Washington Post. 2002 Aug 12; Sect. A: 2 (col.4). Dictionary and similar references:

Dorland's illustrated medical dictionary. 29th ed. Philadelphia: W.B. Saunders; 2000. Filamin; p. 675.

### 4. Unpublished Material

#### In press or Forthcoming:

Tian D, Araki H, Stahl E, Bergelson J, Kreitman M. Signature-of balancing selection in Arabidopsis. Proc Natl Acad Sci U S A. Forthcoming 2002.

### 5. Journal Article on the Internet

Aboud S. Quality improvement initiative in nursing homes: the ANA acts in an advisory role. Am J Nurs [Internet]. 2002 Jun [Cited 2002 Aug 12] 102(6): [about 1, p.]. Available from: <http://www.annals.org/cgi/reprint/145/1/62.pdf>

### Illustration

All drawings should be made with black Indian ink on white paper. Photographs and photomicrographs should be supplied as glossy black and white prints unmounted. All

photographs, graphs and diagrams should be referred to as figures numbered consecutively in the text in Arabic numerals-.

### Drug names

Generic name should generally be used. When proprietary brands are used in research, include the brand name in parentheses in the methods section.

### Permission

Materials taken from other source must be accompanied by a written statement from both author and publishers giving permission to the journal for reproduction. Obtain permission in writing from at least one author of papers that is still in press, unpublished data and personal communications.

The editor of Journal of Diabetic Association Medical College reserves the customary right to style and if necessary shortens the material accepted for publication and to determine the priority and time of publication. Editor assumes that the manuscript submitted by the author is based on honest observations. It is not a task of the editor to investigate scientific fraud paper.





# Progut

Esomeprazole  
The World Class Proton Pump Inhibitor

ensures \_\_\_\_\_

- ✓ *Maximum Quality, Efficacy & Safety*
- ✓ *24 hours Protection from GERD*
- ✓ *Patient Satisfaction*

Manufactured with

EDQM Certified



Grade Esomeprazole

2<sup>nd</sup> Generation  
Vegetable Capsule Shell from USA






**POPULAR**  
Popular Pharmaceuticals Ltd.



Diabetic Association Medical College, Faridpur



