



Daffodil
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A survey work on

“Prescribing pattern for Covid 19 positive patients in Bangladesh”

Submitted To

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Faculty of Allied Health Sciences

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Submitted By

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APPROVAL

This project, A survey review on the Prescribing pattern for Covid 19 positive patients in Bangladesh, submitted to the Department of Pharmacy, Faculty of Allied Health Sciences, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Pharmacy and approved as to its style and contents.

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DECLARATION

I hereby declare that, this survey work report is done by me. Impartial fulfilment of the requirement for the degree of Bachelor of Pharmacy. I am declaring that this survey work is my original work. I am also declaring that neither this project nor any part thereof has been submitted elsewhere for the award of Bachelor or any degree.



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Abstract

Corona virus diseases 2019 commonly known as (Covid 19) caused by SARS-CoV-2, is a life threatening highly infectious severe acute respiratory syndrome. It has been associated with increased mortality all over the world. Many treatment guidelines had been adopted to cure or prevent Covid 19 infections. This study is conducted with a view to go through the scholarly articles to get an overall idea about the drugs used across the globe during the pandemic to manage covid infected patients. Most cases hospital admission was not required. However, from the literature review it is found that various types of drugs were administered including antiviral, antibiotics, antimalarial, vaccine, anti-coagulant drugs, anti- histamine. On the other side, based on the prescription survey it is noticed that ivermectin, moxifloxacin, levofloxacin, some steroid, tocilizumab, rivaroxaban were prescribed to reduce covid induced complications. But in the study, it remained unclear why Ivermectin alone or with other antibiotics were mostly given to the covid positive patients in the study area of Bangladesh whereas use of Ivermectin was limited in the other countries. Further research may be conducted to find out the plausible reasons behind this.

Keywords: Covid 19, antibiotics, anti-viral, Ivermectin, tocilizumab

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Chapter 1: Introduction

1.Introduction

Infection that inflames our lungs disease like pneumonia with an unknown cause was detected to citizens in Wuhan, China, on December 31, 2019. Scientists detected newest member of the coronavirus family which causes this type of pneumonia on January 8, 2020. Soon later, clinical epidemiological studies and the characterization of affected patients were conducted. From the beginning there were six known human coronaviruses, among these six four shown slight colds like symptoms, but 2 cause more serious illnesses: SARS-CoV (Severe Acute Respiratory Syndrome Coronavirus) and MERS-CoV (Middle East Respiratory Syndrome Coronavirus) (1). It is caused by infection with the coronavirus strain that causes severe acute respiratory syndrome (SARS-CoV-2). This virus carried by the Coronaviridae family of the Nidovirales order. The virus's exterior surface possesses crown-like spikes. RNA is present in the nucleic material of a virus which is single strand and its length is 26-32 kilobase. Alpha, beta, gamma, and delta are the groups from corona virus family. (2)

1.1 Evolution

In 1965 researchers confirmed first human coronavirus with common cold symptoms. SARS is the one which originated in 2002 in Southern China and spreaded to 28+ countries. In July 2003, 774+ people died among 8000 infected people. In 2012 researchers confirmed MERS in Saudi Arabia. This virus is less infectious than SARS where 858 people died among 2500 infected report. Like as fever, headache, respiratory problem it's also causes kidney failure.

1.2 Covid 19 mutation and variants

We can say when a virus has traveled widely throughout a community and caused many infections that's will change his character that's mean mutation. When genetic sequence change in a virus called a mutation, and variants are genomes that differ from one another in the genetic sequence. A new mutation occurs in a variant of the original virus created by. (4) A variant of concern, according to the Centers for Disease Control and Prevention (CDC), a virus which change that's mean mutated can infect people faster or spread from person to person faster, and the virus will be less responsive to treatments. (5)

1.2.1 The Alpha variants

From the original the Alpha (B.1.1.7) is a variety which was 1st found in UK in 2020 and this was 50 percent more effective at spreading and causes more severe sickness than the original. A speedily protein N501Y and it has a sensitivity for ACE2 receptors in humans. In Israel, this virus exhibited its feasibility which is eminently manifested in a short span of time, and this is bounded for 90% of all cases. In this point, the case mortality rate has risen. Largest death prediction has note in the second and third phases (6). Figure 1, shows that the case fatality and deaths by alpha variants.

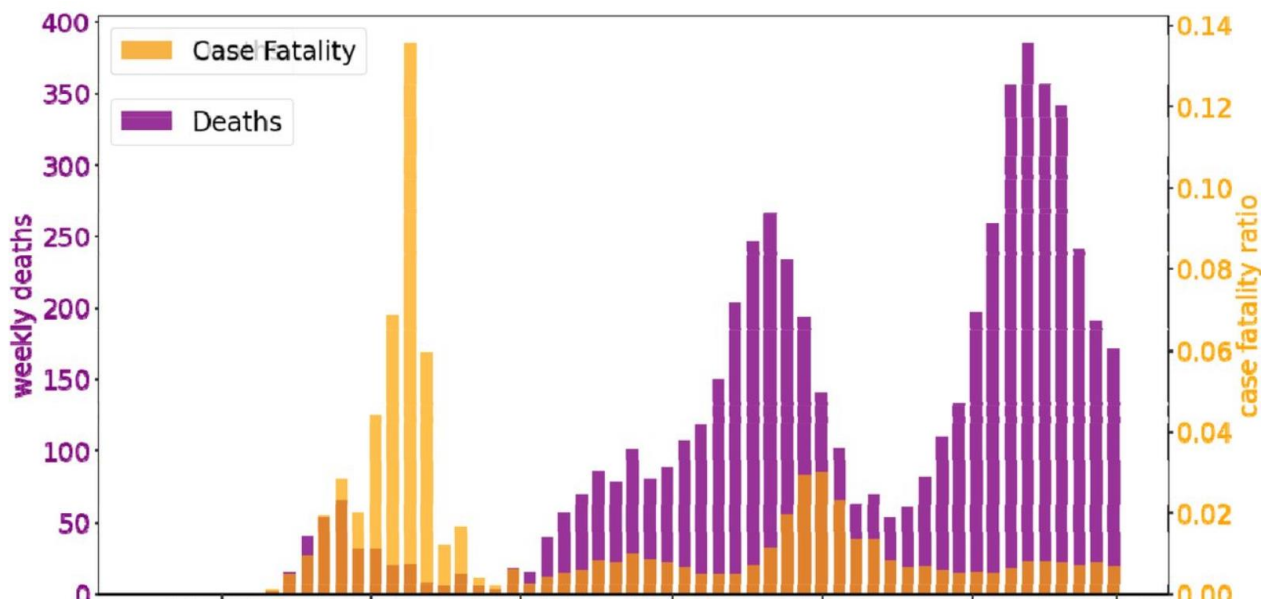


Fig:1

Gamma (P.1) and Beta (B.1.351) viruses were discovered in Brazil and South Africa, and they are both transmissible but not as much as alpha (7). Later in 2020, the emerging Brazilian Gamma variant, derived from the B.1.1.28 lineage, began expanding rapidly.

1.2.2 Beta variants

Beta was first noted in South Africa in May 2020 and it is also deliberated as a variant of concern by WHO. The US Centers for Disease Control and Prevention (CDC) has said it have ability that is 50% increase in transmission, to concern this it's has the ability to evade some of the appeared vaccines (10). N501Y is a mutation of Beta which is more infectious or easy to spread. Immune system can stop this virus to make infection so that E484K, another mutation which makes immune system as powerless and help the virus to avoid detection (11). Beta variation spreaded more than 50 countries. In UK have less cases of Beta.

1.2.3 Gamma variants

From January 2021, In Brazil the Gamma variant infected very much and that increased day by day and in the second wave of infections it became prevalent. When transmission rates increased in 2021 Brazil placed in top in this crisis, with 13 million confirmed cases and 350 000 deaths (8). On February 16th, 2021, the first two cases of the new SARS-CoV-2 variant in Alagoas State were diagnosed. The first case involved an infected person from Amazonas State who moved to Alagoas State. The second case is characterized by Alagoan community transmission. (9)

1.2.4 Delta variants

Delta (B.1.617.2) is the most common variation in the United States currently. As per new findings, the Delta version of the SARS-CoV-2 virus spreads nearly twice as quickly as the original virus. It's yet unknown whether Delta creates a more serious condition. Antibodies may not be effective at inhibiting the Delta version in vaccinated people (13). According to a new study based on Canadian data, delta patients have a 108 percent increased chance of hospitalization, a 235 percent increased risk of ICU, and a 133 percent increased risk of death (14). Previous studies have found that patients who have already been fully vaccinated against SARS-CoV-2 may have a slight decrease in vaccine effectiveness. People who have not received a vaccine dose are now at a greater risk because the Delta variant seems to have more transmissibility evidence. And according to government, at least 78 percent of people in Dhaka are infected with this Delta variant. This modified version has a positive effect on one of three people (15). The death toll in India has exceeded 400,000 as the delta variant raised in the world (16). 6 August 2021: When delta variant spreads within a single day Bangladesh listed 264 COVID deaths in a single day (17). In India this variant found in 2020 for the first time. By analyzing of many sources and communities' researchers reported on November 3, 2021 Delta form majority as globally (18).

Figure 2 and 3 shows the effectivity of delta variants in many countries.

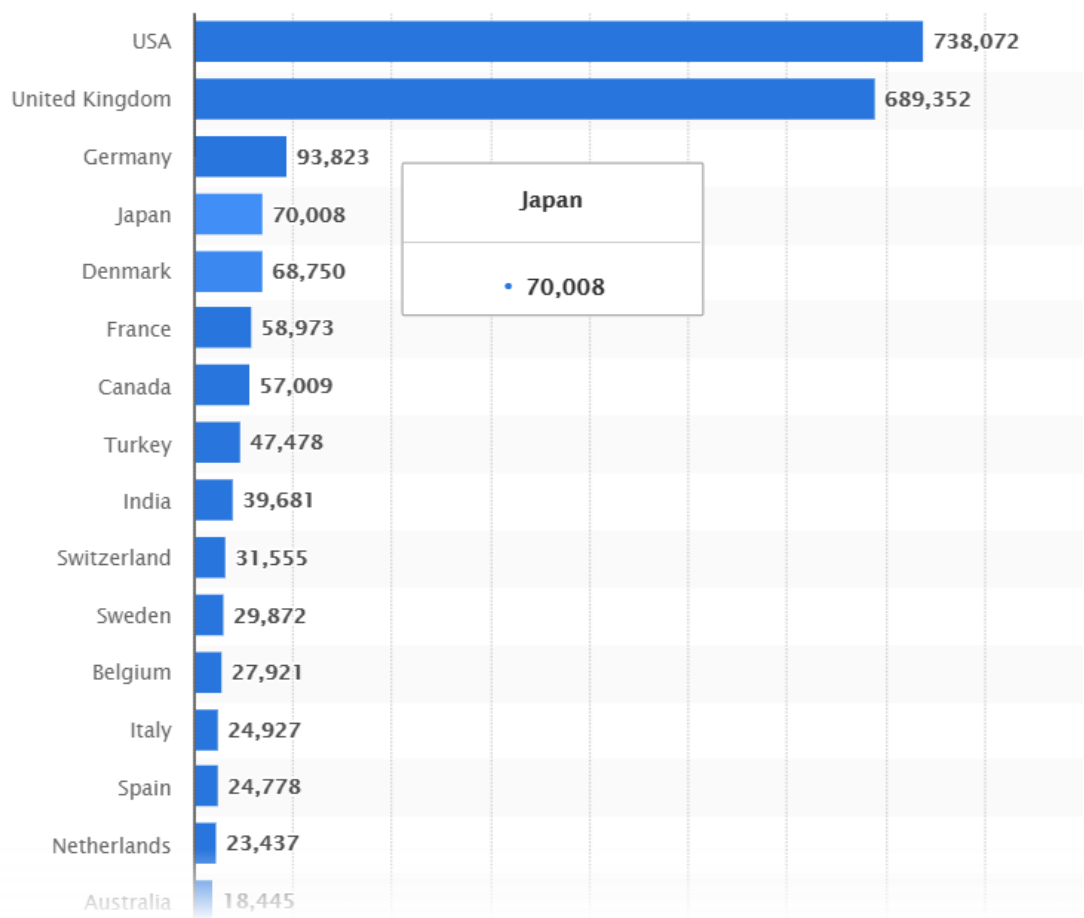


Fig:2 shows the effectivity of delta variants in many countries

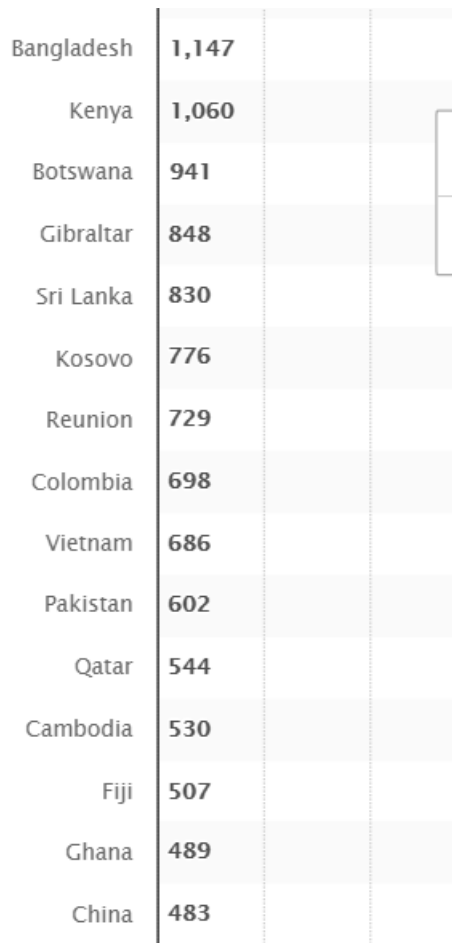


Fig: 3 shows the effectivity of delta variants in many countries.

1.2.5 Lambda variant C.37

In last august lambda variant was first found in Peru. Bangladesh has also faced the extremely infectious Lambda version and has already spread to over 30 nations. For quickly spreading activity the World Health Organization has classified the variant as a "variant of interest"(19). Jahangirnagar University sequenced this virus in BD. According to the sequencing, the novel variant was discovered in the sample of a 49-year-old lady from Dhaka. According to sources, the Lambda variety, which is thought to have originated in South America, is responsible for approximately 81 percent of the cases identified in Peru (20). The WHO and other public health agencies are attempting to determine how the variant compares to other strains of the virus, as well as whether it is more transmissible and vaccination resistant. The WHO said in mid- June that's lambda has a number of modifications which can neutralize antibodies (21).

1.3 Symptoms

Most people have shown a common cold or flu symptoms, with only a few remaining undiagnosed. Adults have the highest immunity to resist the infection, but they can spread it. According to the Chinese CDC, around 80% of coronavirus infections are mild, 15% of patients have developed severe cases, and 5% of patients have been critically ill. A day-by-day analysis of coronavirus symptoms indicates how symptoms progress in typical patients and how the virus, COVID-19, worsen (22).

Day 1: The patient experienced common symptoms like fever, tiredness, muscle tightness, and a dry cough during the first week of the symptom. A few of them can experience nausea and diarrhea. (23)

Day 5: Patients can experience serious symptoms like breathing difficulties. Elder people or have a pre-existing medical condition peoples are in serious risk. (24)

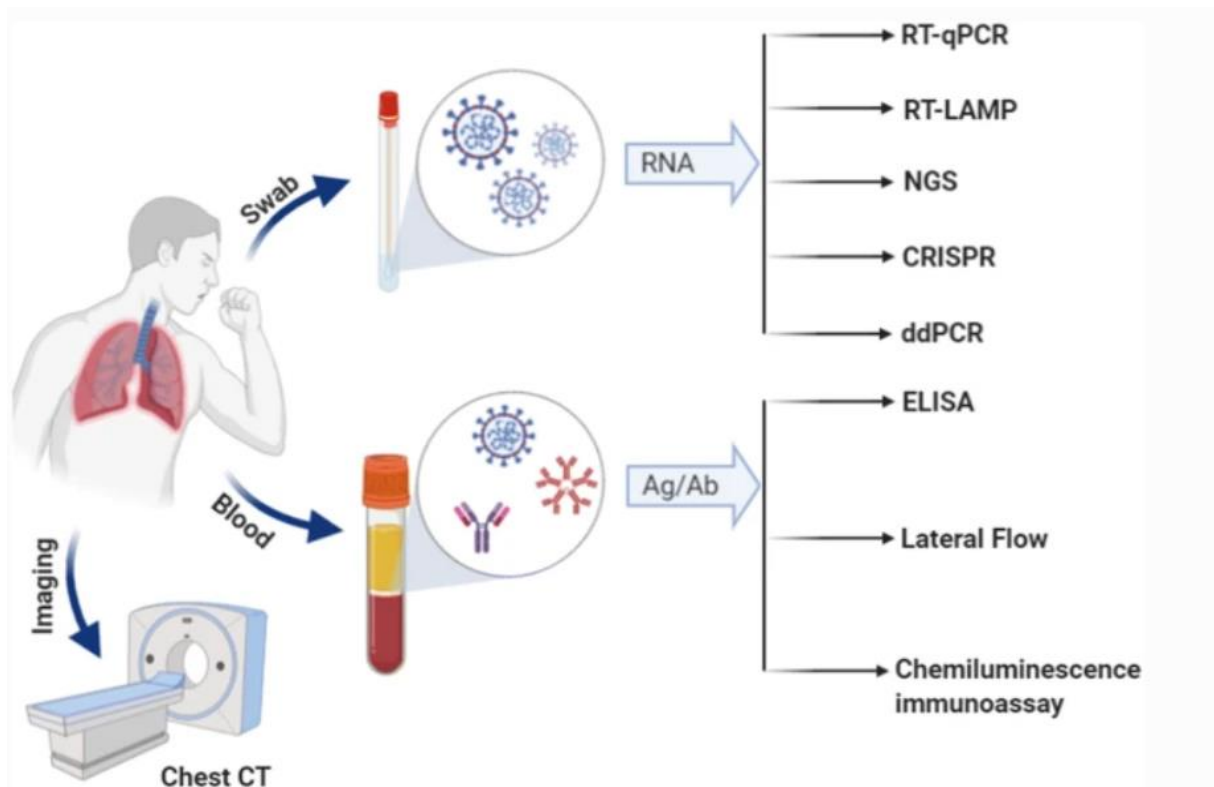
Day 7: Hospitalization can be occurred if breathing difficulties symptom shows. (25)

Day 8: According to the Chinese CDC, 15% of patients experience acute respiratory distress syndrome (ARDS). This is more common in severe situations. (26)

Day 10: If condition worsen that's mean symptoms increase, intensive care unit is needed that's time. Patients with milder symptoms experience abdominal pain and hunger loss, loss of smell, taste. Only a tiny proportion of people die. The current mortality rate is generally 2%. Urgent medical intervention needs when indications include discomfort or pressure in the chest, breathing difficulties, dizziness and pale lips or face shown. (27)

1.4 Diagnosis of Covid 19

Every covid positive patients can experience many symptoms asymptomatic to acute respiratory distress syndrome and multi-organ failure. As a result, diagnosing COVID-19 accurately is difficult. Based on symptoms COVID-19 is diagnosed which can be epidemiological history, clinical signs, and laboratory detection methods such as computed tomography (CT) scans, nucleic acid amplification test (NAAT), and serological approaches (28). Figure 4 shows a graphical summary of the various analytical approaches for diagnosing COVID-19.



Schematic representation of various analytical methods available for SARS-CoV-2 detection

Fig: 4 shows a graphical summary of the various analytical approaches for diagnosing COVID 19.

Many viruses, including the severe acute respiratory syndrome coronavirus (SARS-CoV) and the Middle East respiratory syndrome coronavirus (MERS-CoV), cause upper and lower respiratory tract infections which makes difficult to compare SARS-CoV-2 infections from those (29)

1.4.1 Computed tomography

For detection pneumonia related sickness computed tomography is very first live scanners. When SARS and MERS arrived this method of diagnosing used frequently which gives more good result than X-rays (30). The method now using in many hospitals for identify COVID-19. Chest radiography, for example, had a sensitivity of 69 percent in a retrospective analysis of 64 patients in Hong Kong, compared to 91 percent in RT-PCR. On a chest radiograph, 20 percent of the RT-PCR positive subjects showed no lung abnormalities (31). In comparison, a study with clinically COVID-19 suspected patients was undertaken in the Department of Radiology and Imaging, Bangabandhu Sheikh Mujib Medical University, Dhaka. This cross-sectional study was place between July 7 and August 7, 2020, and included both chest HRCT

and RT-PCR studies, with RT-PCR serving as the reference standard. There were 114 patients in total (32). 96 (84 percent) of the 114 patients had positive RT-PCR results, while 18 (15.7 percent) had negative RT-PCR results. 90 positive patients from 96 RT-PCR positive patients takes chest CT findings, from them six had negative CT results. On the other hand, 14 patient got positive chest CT results from 18 RT-PCR negative patients. To summarize, chest CT imaging shows a high sensitivity for COVID-19 diagnosis. From study and analyzed data can say, when RT-PCR method is not installed in a hospital for diagnose or hard to diagnose chest CT should apply (33). Combined techniques of chest CT scan and RT-PCR can give positive outcomes. CT imaging makes importance for monitoring COVID-19 development and therapy impact (34).

1.4.2 Real-Time reverse transcription polymerase chain reaction

A gold standard method RT-PCR is used to detect SARS-CoV-2, and now it is using in every hospital or in detection center in many countries for population screening, as recommended by the WHO and CDC. RT-PCR is a technique which mechanism is reverse transcriptase converting RNA molecules into complementary DNA (cDNA) sequences, followed by standard PCR amplification of the freshly generated cDNA. Because reverse transcriptase (RT) is involved in the formation of first-strand cDNA, this method of studying gene expression is known as RT-PCR. The RT-PCR method is a two-step procedure (36). A case studies shows that at Khwaja Yunus Ali Medical College Hospital used Real-Time reverse transcription Polymerase chain reaction method in the month of March to May 2021, tests were taken on 1760 cases where 310 (17.6%) cases showed positive in covid 19. Males and females numbers were 211 & 99 among 310 positive cases. Sirajganj was the apex of covid positive and then followed by Pabna, Natore, Naogaon, Bogura, Gaibandha districts, and some area of Rajshahi district (37). Another study shows that at Mymensingh Medical College, From the Mymensingh division: Mymensingh, Jamalpur, Sherpur, Netrokona, and parts of Sunamganj 14356 samples taken for rRT-PCR. SARS-CoV-2 was found in 1086 (7.5 percent) of the cases. With a mean SD age of 34.1+-12 years, 716 (65.9%) of the 1086 positive cases were male and 370 (34.1%) were female. (38).

1.5 Prevention

Prevention is better before getting infected. In order to survive in this pandemic, preventative requirements must be followed. For example, according to the WHO, should always use mask (N95) or other recommended mask, and wash hands with soap, water, or sanitizer. Because One of the most prevalent methods for the virus to travel from one person to the next is through the use of hands. When virus-containing mucus or droplets enter in our body through eyes, nose, or throat. The most common way for this to happen is through the use of hands. Public meetings were prohibited, and major events were canceled. Travel restrictions were enacted, including traffic restrictions and the suspension of most modes of transit, including airports, ports, and train stations, bus stations, metro. If anyone go for a reason in another country were advised for 14-16 days self quarantine in a hotel or other government-approved location and report to the hospital if any symptoms occurred. Self-isolation is required if anyone develops symptoms of Covid 19. Spray disinfection was used on people entering the community, businesses, or offices. In most public areas, central air conditioning and ventilation systems were turned off. In non-public spaces, every time cleaning and disinfection of central air-conditioning/ventilation systems began. The school, college, universities and institutions taking their class and other works by online systems. Plasma was taken from the first COVID-19 patient who recovered in Covid 19, because this plasma will be needed for another covid positive patients for treatment. Telemedicine sites had a role in prescribing medications and discussing patient conditions. Because people are hesitant of going to the hospital, telemedicine is used not only for covid but also for other diseases.

1.6 Treatment

Observing symptoms and conditions many drugs are giving to patients. Like

1.6.1 Favipiravir

For treating Ebola and Influenza Favipiravir was used. It is an antiviral drug which is used in covid 19 for emergency. Beacon pharmaceutical perform a clinical trial on Favipiravir to treat covid 19 positive patients which success rate was 96%. This trial was performed in four hospitals in Bangladesh where favipiravir was given to 50 patients. Kuwait Bangladesh Friendship Government Hospital, Dhaka Mahanagar General Hospital, Kurmitola General Hospital, and Mugda Medical college and Hospital was selected for this trial. In this trial they got very good result. They got 48% good result after four days and 96% after 10 days. This trial shows that their lungs improvement is three times higher than the placebo group. In this trail there have no such side effects e.g. kidney problems, liver problem or carbohydrates in blood. Serious condition and pregnant woman did not participate in this trial. People who have no symptoms or covid negative should not give favipiravir those only given who are positive in RT-PCR result. Patients have to complete the course of this medicine duration 7-10 days. It's not OTC medicine (40).

1.6.2 Molnupiravir

It is also an antiviral drug which alleviate the risk of hospitalization and mortality rate. Many trial studies observed in many countries among them a research study was conducted on 775 patients from USA and other nations. Those patients were covid positive. During that's research no patients were hospitalized. This drug was given as twice a day to half of those patients as four capsules for five days. And half of those patients were given placebo. After 29 days 28 patients were hospitalized from those who were given molnupiravir and no one died. But from the placebo group 53 patients were hospitalized and eight patients died. This drug has much activity which reduces hospitalization and death rate for several covid variant including delta (41).

1.6.3 Remdesivir,

It's a nucleotide analogue and it was used in Ebola epidemic. And used in covid 19 to treat in a small cohort of severe covid 19 patients. A trial was performed in 53 patients and improvement found in 36 patients. This medicine inhibits the viral RNA synthesis. Remdesivir is the first approval drug from FDA to treat covid 19. A clinical trial was performed by the National Institute of Allergy and Infectious Diseases. They identified how long time it takes to recover from COVID-19 within 29 days of being treated. This trial performed on 1062 patients. Placebo group was 521. This clinical trial was performed as being discharge from hospital or being hospitalized but not given supplemental oxygen or other medical care. After 10 days patients who was given remdesivir got improvement and placebo groups improvement was shown after 15 days. Side effects shows that increased levels of liver enzymes, and allergic reactions, changes in blood pressure and heart rate, low blood oxygen level, fever, shortness of breath, wheezing, swelling, rash, nausea, sweating or shivering (42). FDA issued an emergency use for patients in hospitals who are in serious respiratory condition giving them the combination of Baricitinib with Remdesivir. But there have no more evidence for this combination therapy (43).

1.6.4 Antidepressant Drug

Fluvoxamine is an anti-depressant drug given to covid positive patients who are in serious illness and got hospitalized. To reduce inflammation, it was given. Animal study was conducted where researcher identified that the inflammation reduces when selective serotonin-reuptake inhibitor binds to the sigma-1 receptor. (44)

1.6.5 Corticosteroids

Over reaction of immune systems which damage the lungs and other organs and sometimes leads to death. Its mean hyper immune response when patients experience then immunomodulatory drugs corticosteroids used to treat covid 19 are corticosteroids. Dexamethasone and other corticosteroids (prednisone, methylprednisolone) have potent anti-inflammatory activity. Patients who need oxygen supplements and ventilators were given dexamethasone or others were less likely to die within 28 days than those who received standard care. Dexamethasone did not have a benefit in patients who did not need respiratory support. (45,46)

1.6.6 Monoclonal Antibody

Those who need supplemental oxygen, mechanical ventilation, or a heart-lung bypass machine (ECMO) was given the monoclonal antibody which is Tocilizumab to treat covid 19 and those patients are receiving systemic corticosteroids such as dexamethasone. FDA nearly-approved to treat several autoimmune diseases. When cytokine storm shows in patients' inflammation of lungs happens by a protein (interleukin-6). This drug blocks this protein to makes lung inflammation and therefore reduces or stops extensive immune system response. (47) This can be used with the combination of corticosteroids (Dexamethasone).

1.6.7 Anticoagulation drugs

Blood clotting is a risk factor in covid patients. That's why doctor prescribed a small dose of rivaroxaban, warfarin sodium, heparin and enoxaparin to reduce or get rid of from the risk of blood clotting.

1.6.8 Convalescent Plasma

Plasma is a component of blood. When a people get well from covid 19 their blood carries antibody which fight with the virus and this antibody can collect from plasma. It's a safe therapy which is used more than 100 years (48). Convalescent plasma which have high antibody used to treat covid 19 ordered by FDA in emergency. To makes immunity activity powerful to fight with the virus this therapy is beneficial (49). Before giving this plasma, blood have to check for the safety. Though it is safe therapy but have low risk. Such as, allergic reaction, lungs damage, infections such as HIV, hepatitis B and C (50).

1.6.9 Ivermectin

It is an anti-parasitic agent (Ivermectin). Used to treat severe acute respiratory syndrome SARS-Cov 2 after approval of FDA. A research study was performed in Dhaka, Bangladesh where ivermectin as oral, oral ivermectin combination with doxycycline total 3 groups, and placebo group. In this group 72 hospitalized patient was performed, and given for 5 days, per day 12 mg, 12 mg ivermectin single dose and 200 mg doxycycline on day 1, followed by 100 mg every 12 h for the next 4 days. All patient's symptom was same like fever, cough and sore throat. In this trial study patients were founded safe after a 5-day course including no severe adverse effect (51).

1.6.10 Doxycycline (Antibiotic)

An ideal treatment for covid 19 patients, Doxycycline was present. It's an antibiotic also have anti-inflammatory, immunomodulatory activity. It's also treated against RNA virus which blocks protein biosynthesis. A never smoked 34-year male person was founded covid positive by RT-PCR test. Oxygen saturation was normal, 96–98%. Chest X-ray confirmed inflammatory lesions of the interstitial type. Blood tests showed leukocytosis and CRP level of 40. Doxycycline therapy was started initially with 200 mg, and then continued with 100 mg for 7 days. After 2 doses patients' symptoms completely gone. (52)

1.6.11 Ibuprofen, Acetaminophen

At the beginning for reducing fever, aches, pains during covid 19 WHO recommended to use acetaminophen. But now states that either acetaminophen or ibuprofen can be used. (53)

1.6.12 Vitamin C

Some animal studies show that avian virus can't effect broiler chicks if vit c given. Vitamin C can control proinflammatory genes, enhanced epithelial barrier function, and improved alveolar fluid clearance in septic mice with ARDS. In human if takes ≥ 1 g/day vitamin C, infection caused by respiratory virus can be reduce (30). High doses can cause a number of side effects, including nausea, cramps, and an increased risk of kidney stones. There has no clear evidence that it can helps to treat covid 19. (54)

1.6.13 Zinc supplements

Fusion with host membrane, replication of virus protein translation, polymerase replication is so needed for virus. Zinc can prevent fusion with the host membrane, can decrease the viral polymerase function, can block protein translation. Its also can balance the immune response (55).

1.7 Vaccines used in covid 19

1.7.1 Moderna Vaccine

Messenger RNA technology included in Moderna vaccine. By covax facility Bangladesh was given 2.5 million doses vaccine. From 18 years old to above people can take this vaccine. A four weeks interval time need for giving the 2nd dose after 1st dose. 93% to 94% activity can increase after 2nd dose shown by a clinical trial.

1.7.2 The ChAdOx1-S/nCoV-19 [recombinant] vaccine

It is a coronavirus infection vaccination with a replication-deficient adenoviral vector (COVID-19). The SARS-CoV-2 spike protein gene is present in the vaccine, where S-antigen protein produced by host unique to SARS-CoV-2, which allow the body to create an immune response and store information in memory immune cells. An 80 days follow up shows who received full doses of vaccine will give 63.1% activity. But its efficacy will be higher when the interval between doses was longer. (56)

1.7.3 BNT162b2

It is a prefusion stabilized, membrane-anchored SARS-CoV-2 full-length spike protein encoded by a lipid nanoparticle-formulated, nucleoside-modified RNA vaccine (56). In this pandemic vaccine are need and that should be safe. In a clinical study, people from Southern California, for up to 6 months, researchers will evaluate the effectiveness of the BNT162b2 vaccination against SARS-CoV-2 infections and COVID-19-related hospital admissions. Researchers included 3 436 957 people out of 4 920 549 who were evaluated for eligibility between December 14, 2020, and August 8, 2021. Effectiveness against SARS-CoV-2 infections was 73 percent in completely vaccinated people, and also against COVID-19-related hospital admissions was 90 percent. Following five months, the effectiveness against infections had dropped from 88 percent during the first month after full immunization to 47 percent. Vaccine effectiveness against infections of the delta variant was excellent during the first month following full immunization (93 percent), but fell to 53 percent after four months. The effectiveness against other (non-delta) variations was equally high in the first month following full immunization, at 97 percent, but declined to 67 percent at 4–5 months. the data show that BNT162b2 is effective against hospital admissions for up to 6 months after being fully vaccinated. The decrease in vaccine activity against SARS-CoV-2 infections over time is most

likely due to decreasing immunity rather than the delta variant escaping vaccine protection. (57)

1.7.4 CoronaVac or Sinopharm

Viral vectors are used in the Oxford/AstraZeneca vaccine, while mRNA is used in the Moderna vaccine. CoronaVac or sinopharm, on the other hand, uses an inactivated variant of the SARS-CoV-2 virus. CoronaVac or Sinopharm is a vaccine that uses the entire inactivated virus, not only the spike protein. CoronaVac employs an age-old approach of mass-producing the SARS-CoV-2 virus and then chemically inactivating it. Chile began a massive vaccination campaign on February 2, 2021 (58). Between February 2 and May 1, 2021, a batch of around 10.2 million individuals involved in this study. In patients who had been fully immunized, the adjusted vaccination effect was 65.9% for preventing Covid-19, 87.5 percent for preventing hospitalization, 90.3 percent for preventing ICU admission, and 86.3 percent for preventing Covid-19–related mortality. (59)

Chapter 2: Purpose of this survey work

Objective of the project work:

- To review scholarly manuscripts regarding Covid 19 to come into know about the uses of medications used throughout the for Covid treatment.
- Compare the results obtained from the literature review with the results gained from the prescription survey in few areas of Bangladesh.

Chapter 3: Methodology

Methodology:

Initial manuscripts review followed by Prescription survey of Covid 19 positive patients.

Inclusion criteria: In this study prescription analysis done only for the patients those who were Covid positive in RT-PCR test.

Exclusion criteria: Patients with respiratory infections other than Covid were excluded.

Prescription collection strategy: Physically hard copy collection, Softcopy (Jpeg)

A prescription survey work was conducted in Bangladesh during the time period of 05 October, 2021 to 15 November, 2021. To observe the prescription patterns for the covid positive patients in Bangladesh. 110 prescriptions were collected from Moulobi Bazar (Sylhet), Dhaka, Bhola, Kustia, Chandpur, Mymensingh, Rajshahi, Rangpur, Dinajpur. Moulobi Bazar (Sylhet), Dhaka, Bhola, Kustia, Chandpur, Mymensingh, Rajshahi, Rangpur, Dinajpur.

Chapter 4: Result

Summary of drugs according to literature review:

In this crisis situation, many countries used many drugs as emergency which was approved FDA and WHO like as

- Antiviral drug: Remdesivir, Favipiravir ages started from 12 to older age (60).
- Corticosteroids: Dexamethasone, prednisolone, Methyl prednisolone.
- Anti-Histamine: Fexofenadine, Loratidine, Desloratidine.
- Hydroxychloroquine and Chloroquine.
- Antibiotic: Azithromycin, Doxycycline, Moxifloxacin, Amoxicillin.
- Bronchodilator: Salbutamol, Formoterol, Doxofylline, Montelukast.
- Protease Inhibitor: Lopinavir/ Ritonavir.
- Ivermectin.
- Colchicine: Used to relieve from inflammation from gout.
- Anti-coagulants; Rivaroxaban and Apixaban.
- Convalescent plasma.
- Others

Monoclonal antibodies:

Bamlanivimab, Combination of Bamlanivimab and Etesevimab which shows low amount of virus in body, Casirivimab and Imdevimab (REGN-COV2), Tocilizumab and other IL6 inhibitors.

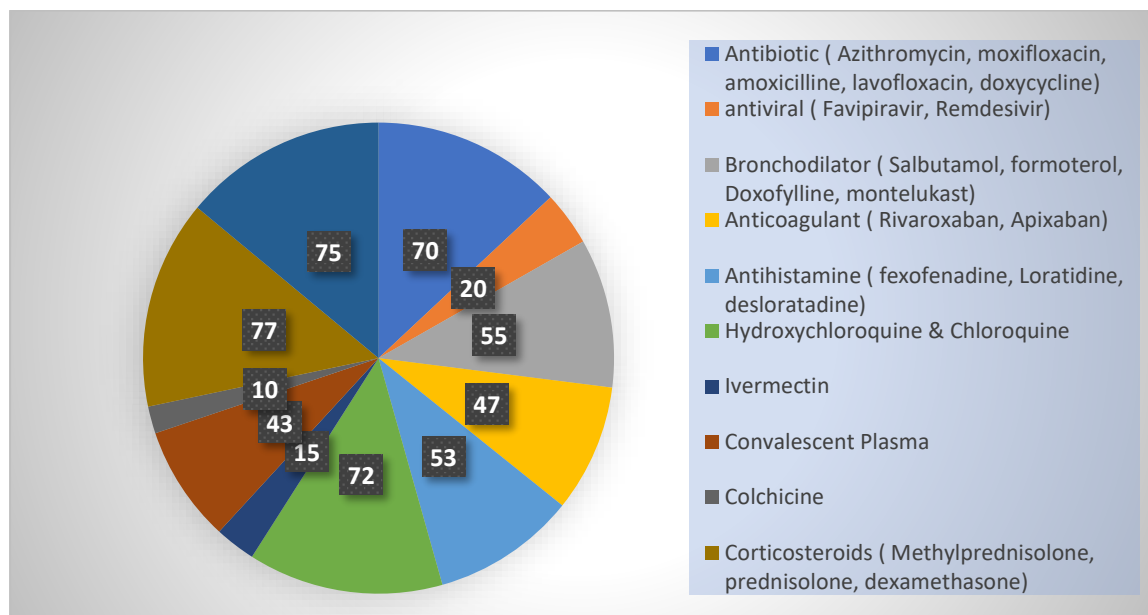
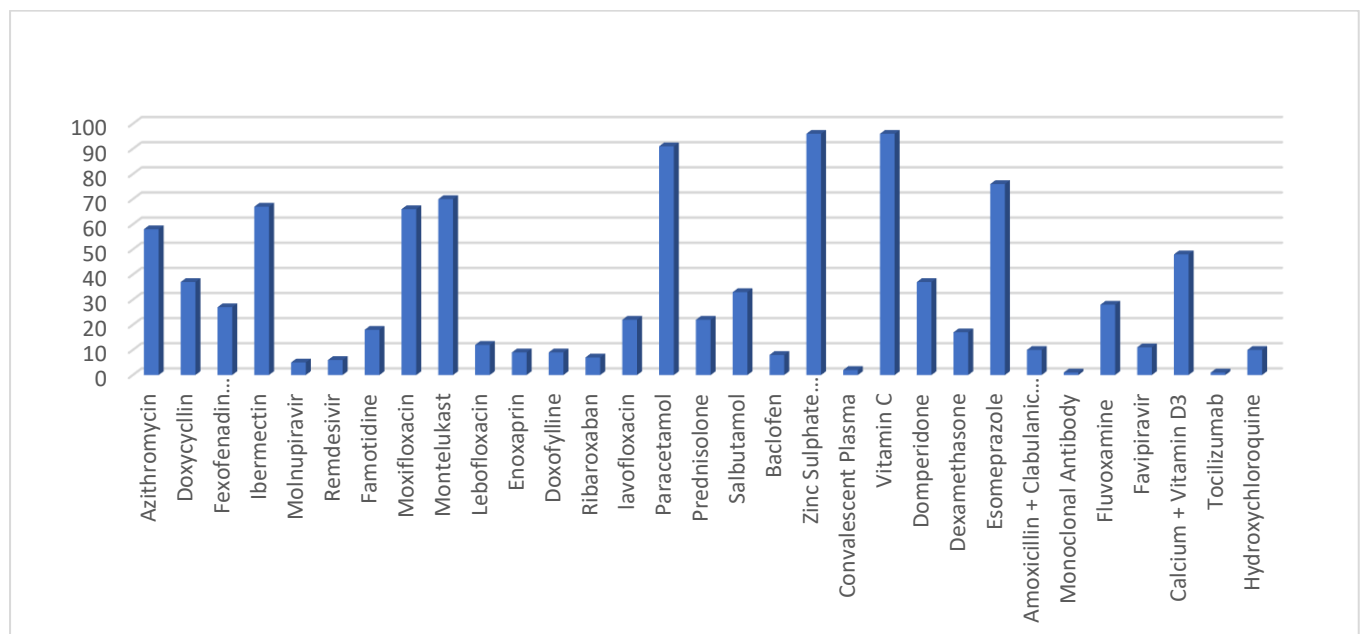


Chart 1 shows that drugs used throughout the world to treat Covid 19

Summary of prescribed drugs collected in the prescriptions survey:

Among 110 patients around 4% were in critical condition who needs supplemental oxygen, ICU, ventilation support, 96% patients were in mild condition who did not experienced any supplemental oxygen or other support. They only took home care treatment such as antibiotic (azithromycin, levofloxacin, amoxicillin + clavulanic acid, doxycycline, moxifloxacin), bronchodilators (salbutamol, doxophylline, montelukast), Antihistamine(Fexofenadine, loratadine) corticosteroids (dexamethasone, prednisolone), Anti-coagulant (rivaroxaban, warfarin sodium, enoxaparin sodium) Anti-viral (favipiravir, remdesivir) currently molnupiravir is using, Monoclonal antibody (tocilizumab), Hydroxychloroquine, Ivermectin, Zinc, These patients have seen symptoms such as fever, cough, tiredness, loss of taste or smell, sore throat, hypertension, headache, diarrhea. With this symptom patient's oxygen level is around 95%. Among those critical condition patients 1 patient died who was in ICU and ventilation support. And 2 patients needed convalescent plasma, corticosteroids. And 1 patient needed monoclonal antibody and also was in ICU. Among these 110 patients, hydroxychloroquine was given to 10 patients with other medications. And no one died but reduced symptoms and hospitalization in 10 days.

Mild condition patients are those who experienced common symptoms such as: Fever, cough, loss of smell or taste, sore throat, headache, tiredness, diarrhoea. Serious or critical condition patients are those who experienced serious symptoms and they needs to hospitalized. Those patient experience: Chest pain, difficult to breath. Chart 2 shows people used medication in Bangladesh.



Chapter 5: Conclusion

Conclusion:

From this study it is observed that there are some common drugs prescribed all over the world like azithromycin, Hydroxychloroquine, Montelukast, Dexamethasone, Tocilizumab, vitamin D, Zinc. However, Ivermectin was frequently used as per this study. Dexamethasone was less prescribed. Further, study is required to find out why Ivermectin was frequently used and to relate its effectiveness in covid 19 patients in Bangladesh.

Chapter 6

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