Annual Journal 2021 - Volume 30

BAPA

Bangladeshi-American Pharmacists' Association

- A PHARMACIST'S REFLECTION ON TICKER TAPE PARADE
- PHARMACY, A SERVICE-BASED PROFESSION
- CLINICAL IMPACT OF THE EARLY USE OF MONOCLONAL ANTIBODY LY-COV555 (BAMLANIVIMAB) ON MORTALITY AND HOSPITALIZATION AMONG ELDERLY NURSING HOME PATIENTS: A MULTICENTER RETROSPECTIVE STUDY
- PANDEMICS, COVID-19 AND PHARMACIST'S ROLE
- PHOTOS FROM NYC 2021 TICKER-TAPE PARADE

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BAPA Journal is published by
BANGLADESHI-AMERICAN PHARMACISTS' ASSOCIATION
73-62 196th Place
Fresh Meadows, NY 11366

917-868-5564

Contact: bapapresident@gmail.com | Cover Design: Stuart Alleyne | Desktop Publishing: Stuart Alleyne

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Departed Souls

We deeply regret and mourn the departure of our fellow friends.
We miss them a lot and remember them in our prayers.
In this day of the Convention we will miss their presence.

Nazir Ahmed

Mohammad Azim

Mohammed Hakim Bhuiyan

Manju Biswas

Utpal Kanti Biswas

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Disclaimer: If we missed anybody's name it is an unintentional mistake.

Table of Contents

Sections

BANGLADESHI – AMERICAN PHARMACISTS' ASSOCIATION

30th Annual Convention Programs

SEPTEMBER 11TH - 12TH 2021

BAPA CONVENTION SCHEDULE AT-A-GLANCE

SATURDAY	SEPTEMBER 11TH
9:00 AM - 12:30 PM	Registration
2:00 PM - 5:00 PM	**CONTINUING EDUCATION CLASSES**
4:00 PM	Room Check in
5:00 PM - 7:00 PM	Free Time
7:00 PM - 10:00 PM	Dinner
10:00PM - 1:00 AM	Cultural show

SUNDAY	SEPTEMBER 12TH
9:00 AM - 11:00 AM	**CONTINUING EDUCATION CLASSES**
11:00 AM - 1:00 PM	Brunch

Message from the PRESIDENT

Dr. Parvin Rahman

Welcome to our 30th annual BAPA convention. What a year we've all passed! Looking back at March 2020, it feels surreal that we are here today, holding an in-person convention. I am thankful to see this day and also mourning the loss of so many, including many of our own, to this once in a century pandemic.

If 2020 was the year of loss and heartache, 2021 is all about vaccination and hope, and I am happy that we are contributing to this process. As pharmacists, we saw the biggest shift in our practice to implement clinical services in retail settings this year by providing COVID testing and vaccines to our communities. While reimbursements of prescriptions are dwindling, incorporating clinical services in pharmacy settings may be our tickets for survival and great professional satisfaction. I congratulate you all for adapting to the demands, perspectives and responsibilities of this new world in the fight against the pandemic.

Mohammad Taher and I were among the few pharmacists who participated in the ticker tape parade honoring COVID-19 heroes and it was our honor to represent you all. Last year we felt our efforts were not recognized and I wrote letters to government officials asking them to include pharmacists as healthcare heroes. Our walk through the confetti-bedazzled famous Canyon of Heroes in Manhattan, alongside other pandemic heroes, was an emotional one for me and a perfect acknowledgment of all our hard work.

Even in the middle of the pandemic, current BAPA EC members worked tirelessly to achieve goals we set for ourselves and the organization at large. Most importantly, we registered BAPA as a true nonprofit 501(c)(3) corporation for the first time in the organization's history. The process took nearly a year, but it is a very important milestone for BAPA and I'm glad to have achieved it during my tenure. Our user friendly website is maintaining our online presence and is updated daily with relevant healthcare news, online registration for events and more. We held a very successful virtual convention in 2020, which offered important CE credits to our participants, and our virtual general meeting last year had great attendance. The members list is almost completely updated with everyone's correct information and we also held a fun-filled successful picnic in August of 2021, a long loved but forgotten tradition of BAPA.

At the height of the pandemic last year, we collected funds for charity and efficiently distributed them among people who needed it most. At any given time there are multiple requests to BAPA to donate for charitable causes and I wanted to create a proper fund for this purpose, but didn't know where to start. Just a few days ago, Dr. Salah U Ahmed came forward and graciously offered to donate a generous fund to start this charity. With this seed money, we will be able to start the much needed and brand new BAPA Charity Fund. Any charitable contributions to BAPA is tax deductible for donors due to our nonprofit status and my sincere hope is that charitable giving is one of our core goals going forward, allowing BAPA to make a difference in the lives of people in need. Many thanks to Dr. Ahmed for helping us start this.

As the first female president of BAPA, I am honored to have been of service to this organization and have great hopes for our future. My two year term was faced with many challenges but I was able to achieve a lot of the goals we set because I had the help, support and efforts of an excellent BAPA executive board. My heartfelt thanks to the dream team, without whom I wouldn't have been able to achieve any of this.

I wish you all a safe and healthy year ahead and look forward to seeing you all soon again.

Dr. Parvin Rahman

President, BAPA

Message from the VICE PRESIDENT

Dr. Sabrina Rahman

Thank you for joining us for this year's 2021 Convention. I would like to recognize our donors Kinray and Micro Merchant for their contributions and continuous support. 2020 was a hard-hit year with the pandemic and we are still mourning those who passed away during that time as well as conveying our condolences to all our past members who have passed away.

As last year was a hard year for all the members, on behalf of the executive board I would like to convey our sincerest gratitude to everyone who was able to make it to this year's convention. We look forward to spending time together again and making the best of the weekend just like our previous years.

I would like to recognize that we had a successful virtual convention last summer with more than 100 attendees and plan to continue more virtual programs going forward. I would also like to recognize BAPA's efforts to maintain an active position even while we were all going through the pandemic. This year we were able to have a very successful BAPA picnic, just last month with more than 100 attendees after many years of not doing a BAPA picnic at Belmont Lake State Park. It was a joyous occasion, and we hope to continue this past time tradition.

My heartfelt gratitude also goes out to our executive board and especially our president Dr. Parvin Rahman, who have all worked hard to create a successful year for our members and relaying all the necessary information needed throughout the year.

I am humbled to have been chosen to serve this great organization and its members. I am forever grateful for the guidance from all those who have been an inspiration to me in this association and it is an honor to be involved in a profession that is so necessary especially during these trying times. I thank everyone for their participation and time put into the association and hope everyone continues to be involved.

Sincerely

Dr. Sabrina Rahman

Vice President, BAPA

articles

A Pharmacist's Reflection on Ticker Tape Parade

by Mohammed Taher, President-Elect, NYCPS

When I first heard the news from the Pharmacists Society of The State of New York (PSSNY) that NYC Mayor Bill deBlasio was going to have a ticker tape parade in honor of the hometown heroes that helped NYC pull through the COVID 19 Pandemic, and pharmacists were part of the recognized group of essential workers, I was ecstatic. I felt a professional sense of acknowledgement. From the beginning of this pandemic, pharmacists all across the state and the entire nation stepped up to fight against the Covid 19 pandemic. Initially, I believed we did not get as much recognition from any of our elected officials for the fearless efforts and hard work that the community pharmacists provided to the various communities in New York City and around the country. The invitation to join the ticker tape parade helps me finally feel that we have been recognized for our very important community services. We stood strong and were honored by Mayor DeBlasio's invitation and were ready to represent our profession and neighborhood community pharmacies.

When the nationwide lockdown was first announced back in March 2020, many assorted local retail businesses were forced to shut down. When I looked around the neighborhood of my pharmacy, it seemed like a ghost town. There were very few people walking on the streets due to the lack of many essential business being closed; including many medical offices. In addition, local urgent medical care centers were not as easily accessible due to extended wait times and limited access protocols. The combination of offices being closed and long wait times led to many people turning to their local pharmacists for medical advice and also for essential household items. Pharmacists and independent pharmacies have always been the most accessible form of health care. The unfortunate situations of the Covid 19 pandemic simply amplified the role that pharmacies played in our communities.

Under the executive order of Governor Cuomo, pharmacies were able to obtain CLIA waivers and perform COVID-19 testing. As a result, our workload tripled. Every test that was performed warranted follow up calls and counseling on proper care. All COVID-19 positive patients had to be educated on proper quarantine guidelines and management of symptoms. Nonetheless, we remained determined to manage it all. Additionally, most pharmacy owners did not care about the low reimbursements for the testing; they did not care they might not be in business in a few months down the road. We are health care professionals first and foremost and providing services to our community was a priority. History will remember we went to battle to help our patients and many have lost their lives in the process. That is why when deciding which 10 members to represent the community pharmacy at the parade we chose 10 special pharmacists who went to war against COVID-19. As excited as we were to be able to attend the parade, we also acknowledge the lives we lost and dedicate the parade to you.

Before the parade, I took a little time to read the history of ticker tape parades in NYC and the more I read, the more excited I became. For those who aren't aware, the first NYC ticker tape parade originally took place on October 28,1886; in honor of the dedication of the Statue of Liberty. Although most ticker tape parades are associated with the New York sports team to celebrate their championship, there have been other instances where it was held to honor other significant figures. Neil Armstrong and his fellow astronauts of Apollo 11 were honored in 1969 after the first moon landing. World dignitaries such as Nelson Mandela, John F. Kennedy, Queen Elizabeth II and other famous individuals such as Albert Einstein, John Paul II, John Glenn, Amelia Earhart also received a parade in their honor. So, for us pharmacists, to walk down Broadway in lower Manhattan which is known as the "Canyon of Heroes" and receive that same recognition and respect from our fellow New Yorkers was a once in a lifetime opportunity. The same way I read about the history of the ticker tape parade, someday people will read about us, the pharmacists as

front-line health care/essential workers being honored for risking our and our family members' lives to fight against the worst pandemic of our lifetime.

As the parade started, we marched alongside with other healthcare workers from all over the city, The parade started at Battery Park and traveled up Broadway to City Hall. As we got started, we weren't sure what type of crowd would turn out. It turned out to be way bigger than we imagined; there was not a single empty space all along the sidelines. Senator Chuck Schumer was a surprise guest at Battery Park and he took pictures with different professionals and organizations. He spoke to our NYCPS Chairwoman, Aniedi Etuk and he thanked all of us for our service. Additionally, there was no shortage of media coverage. I was stopped by channel 12, CW11 as well as a Japanese television station. This event attracted international coverage. After all NYC and the entire New York State was the epicenter of this fatal virus during the highest peak of COVID 19, but like typical New Yorkers we fought hard and led by our example to other cities and states as to the best way to manage this killer virus. There is no way to describe the feeling of enthusiasm during the parade. It took a while for me to realize what I was witnessing was for real. People from the sidelines were screaming and cheering for pharmacists. Probably, for the first time I felt the general population truly thinks highly of us. Even after the parade, we went out for lunch and people stopped by our table to thank us for our service. It's not just "lick stick and pour anymore". We stepped up to the challenge when our patients counted on us the most by our tirelessly providing medication, testing, eventually providing COVID 19 vaccines, in addition to our traditional support with patient counseling and that famous tender loving care.

For one day we felt like we were celebrities; the hometown heroes. But we were just 10 individual pharmacists representing all of our sister and brother pharmacists. The tribute should go to all the pharmacists in New York especially remembering those who lost their lives trying to protect others while working at their pharmacies. While I hope there is never another pandemic like this, we certainly have to impress upon our elected officials at all levels of government as well as the general populations that pharmacists can be in the frontline to battle any challenges that come our way. We are thankful for the gratitude that the mayor and people of New York City have shown us. This truly was an event I will carry with me throughout my lifetime.

Pharmacy, A Service-Based Profession

by Mohammed Taher, President-Elect, NYCPS

My interest in independent pharmacy began when I was a teenager, I was working for my uncle at his pharmacy during summer. My initial intention was just to make some money during summer as a student but the nature of the profession began to intrigue my interest in pursuing pharmacy as a career. I like the patient pharmacist interaction , and noticed how much patients respected pharmacists advice regarding medications as well as things in general.

Like an average person I had the same impression when you ask someone to describe a pharmacist, the words “lick stick and pour “ come to mind. That’s how the traditional pharmacists practice. My impression changed when I was in pharmacy school and decided to pursue a Doctorate of Pharmacy Degree. While I was honored to receive a prestigious degree, my dream never faded away . I wanted to become a pharmacy owner and make a difference in patients’ lives.

While I was in pharmacy school there was already much more emphasis on clinical pharmacy more than ever before. The term MTM and pharmacists as immunizers began to get more traction . Our professors began to preach that pharmacy is heading towards a service oriented profession rather than product oriented. There were a lot of bills we were trying to pass at that time but it was uncertain whether we would ever get to implement clinical service in our practice.

When I purchased my pharmacy in 2015 I was eager to implement more clinical service at the pharmacy. By that time our scope of practice increased tremendously . Vaccination now has become part of our daily practice. More patients now receive the flu shots on a yearly basis since pharmacists received authorization to vaccinate. Under the Medicare Modernization Act patients are entitled to receive a comprehensive review of their medications, thus we have incorporated Medication Therapy Management (MTM) in our daily practice. Pharmacies are being compensated for providing these services. By providing this service, medicare patients now have better understanding of the medications, leading to more compliance and hope it will further reduce the visits to the emergency rooms .

Pharmacy profession has changed over the years , but now I can honestly say that clinical pharmacy in retail stores has officially arrived. We are still in a pandemic and there is no doubt pharmacists have a tremendous impact in fighting the covid 19 virus. Many of the retail chains as well as independent pharmacies have been testing for covid 19, giving more accessibility to patients. In order to perform these tests we are required to get a Limited Service Lab certificate from the department of health. I never imagined one day as a pharmacist I would be able to work with a Laboratory and have the capability to order tests. I contacted covid 19 in March of 2020. When I went to the urgent care after waiting 3 hours I was told they have only one test left so they couldn’t test both me and my wife. It was a very stressful time as you can imagine, we were still in the early phase of the pandemic and there was a lot of uncertainty. So when I started testing at my pharmacy I thought about my situation and I made a promise to my patients we will do it quickly and efficiently and we won’t deny family members who may not have insurance.

Covid testing at my pharmacy was extremely well received especially for our quick service. I dedicated three staff members to work patients who wanted to get tested from making the appointments, conducting the test, then follow up calls with the patients to discuss their results. I saw the look of uncertainty many patients had which reminded me of my own situation nearly a year ago, there were countless days where we couldn’t close our gate because of the long line outside the pharmacy. The least I can do is alleviate

their anxiety by staying late conducting the tests.
Covid testing wasn't just for patients who were exposed or had covid like symptoms . In the world we live in now if you need a medical procedure, travel, or visit sporting events you need a clearance. During the holiday season families often booked flights without realizing the need to have a negative test. I had to open for a few hours on Christmas day and New Years because some people booked their flights without realizing they needed to get tested on that date. The smile and relief is what you appreciate as a provider and satisfaction as a healthcare professional.

Since we started covid testing program , it increased my professional satisfaction and it was not just that we were helping patients but it also we were helping our fellow colleagues . From getting the Clia Waiver to set up a designated area from test, preparation takes almost a month. I am happy I was also able to set up 5 other pharmacies to perform the covid test. Educating our colleagues and learning from each other is what our professional is all about. As I continue to learn from others , I hope to share the same knowledge to others as well. Since I joined as a board member at New York City Pharmacists Society I can confidently say I am now more knowledgeable than I was 5 years ago. We root for each other's success and provide comfort due the terms of turmoil. One of the major challenges I faced initially was incorporating the testing into my workflow. Many of us turn away from new programs because we are busy filling prescriptions. But once we see our fellow independent owners willing to teach and guide you to implement a program you start to believe you can too add clinical service in your practice in addition to filling your daily scripts. I'm happy I have mentors to guide me and I was able to advise others how to implement covid testing in their practice.

In conclusion I want to point out there are resources out there to help us grow revenue through different ways. I cant understate the importance of being a member of Pharmacists Society of the State of New York (PSSNY) and CPESN. Our profession is constantly changing and our scope of practice will continue to grow. My plea to all the pharmacy owners is to become PSSNY members, CPESN members , we are not competing against each other rather helping each other grow. We must join forces to protect and raise the integrity of the profession of pharmacy. I believe allowing us to do Covid Testing by the law makers is just the beginning. There are more opportunities on the horizon. I challenge you to get out of your comfort zone and join the Army of pharmacist who are innovating and implementing clinical pharmacy in retail pharmacy.

Clinical Impact of the Early Use of Monoclonal Antibody LY-CoV555 (Bamlanivimab) on Mortality and Hospitalization Among Elderly Nursing Home Patients: A Multicenter Retrospective Study

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Abstract

Importance

Corona virus disease 2019 (COVID-19) outbreaks are frequent occurrences in nursing homes and long-term care facilities (LTCFs), resulting in subsequent hospitalization and death.

Rationale

Virus-neutralizing monoclonal antibodies demonstrate a significant decrease in both viral load and hospital transfer rate among patients with mild-to-moderate COVID-19 infection.

Objective

To assess the clinical outcomes of COVID-19 patients with mild-to-moderate symptoms in LTCFs who received LY-CoV555 as compared to those who did not receive this treatment.

Design

Retrospective case-control study and logistic regression analysis.

Setting

LTCFs in NewYork.

Participants

Two-hundred forty-six (246) LTCF patients diagnosed with mild-to-moderate COVID-19 infection with positive COVID-19 polymerase chain reaction (PCR) from November 15, 2020, to January 31, 2021.

Methods

Two-hundred forty-six (246) COVID-19 patients were identified from electronic medical records, out of which 160 cases were exposed to LY-CoV555 treatment (700mg single dose,intravenous infusion). Eighty-six (86) patients were unexposed controls who did not receive monoclonal antibodies, LY-CoV555.

Outcome
We assessed the odds of death and hospitalization of exposed cases as compared to unexposed controls. Using logistic regression analysis, we also assessed the risk factors associated with these outcomes in the entire sample population.

Results
The mean age of the entire sample was 82.4 years. Fifty-two percent (52%) of patients (n = 129) were female and 48% (n = 117) were male. The mean ages of the exposed group and the unexposed group were 81 years and 84 years, respectively. At the end of the study, 92% (148/160) of the exposed group were alive or not transferred to the hospital as compared to 79% (68/86) patients of the unexposed group (OR 3.23, 95% CI: (1.48, 7.31), p-value = 0.0032). Three percent (3%; 5/160) of patients died in the exposed group compared to 10% (9/86) of patients who died in the unexposed group (OR = 0.25, 95% CI: (0.1, 0.85), p-value = 0.0257). Four point thirty-seven percent (4.37%; 7/160) of patients in the exposed group and 10.46% (9/86) of patients in the unexposed group were transferred to the hospital (OR = 0.35, 95% CI: (0.15, 1.08), p-value = 0.0793).

Conclusion
Early treatment with monoclonal antibody LY-CoV555 is associated with decreased mortality among high risk patients with mild-to-moderate COVID-19 infection in LTCFs. Although not statistically significant, there was a trend towards a lower risk of hospitalization in patients treated with LY-CoV555.

Introduction
The corona virus disease 2019 (COVID-19) pandemic has spread rapidly, disrupting the lives of millions of people in the world and placing an overwhelming burden on the U.S healthcare system [1]. As of March 31, 2021, there have been over 30 million COVID-19 cases and over 551,000 deaths in the U.S. [2], and nursing home residents and staff account for around 40% of COVID-19-related deaths [3]. Due to their congregate setting and multiple medical conditions, residents in long-term care facilities (LTCFs) are at high risk for the progression of severe COVID-19 infection, hospitalization, and death. Multiple treatment regimens have been implemented to treat hospitalized patients with COVID-19, including antimalarial drugs [4], antiviral agents [5], anthelmintics [6], immunomodulators [7], glucocorticoids [8], and convalescent plasma [9]. However, treatment options for out-patients with COVID-19 infection are limited. Our group initially used doxycycline and hydroxychloroquine to treat COVID-19 infection in LTCF residents [10] and later used doxycycline alone [11].

The COVID-19 virus enters cells through binding of its spike protein to angiotensin-converting enzyme 2 (ACE2) receptors on target cells [12]. Recently, several studies in animal models with virus-neutralizing monoclonal antibodies for COVID-19 infections have shown promising results [13]. The LY-CoV555 monoclonal antibody binds to the receptor-binding domain of the viral spike protein. Studies demonstrate that utilizing monoclonal antibodies for mild-to-moderate symptoms of COVID-19 infections in outpatient settings reduces the viral load, improves symptoms, and prevents hospitalization [14-16]. Here, we report the clinical findings of high-risk patients in LTCFs with mild-to-moderate COVID-19 who received LYCoV555 treatment.

MaterialsAndMethods
Study design
We conducted a retrospective chart review of 246 LTCF residents, diagnosed with mild-to-moderate COVID-19 infection with a positive COVID-19 polymerase chain reaction (PCR) test result between November 15, 2020, and January 31, 2021. Out of the 246, 160 patients were treated with the virus-neutralizing monoclonal

antibody LY-CoV555 (Bamlanivimab), a 700 mg single dose infusion over one hour within 48 hours after the initial diagnosis. Patients in the exposed group or patients' families were fully informed about the risks and benefits of LY-CoV555 and provided informed consent before starting this treatment. Safety was assessed in all patients. Eighty-six patients did not receive LY-CoV555 treatment (patients were not prescribed it by their primary care physicians, patients or their families did not consent, or for other reasons). Oversight medical boards and corporate clinical services approved this study.

Statistical analysis

Data were collected from institutional electronic medical records and saved in a secure portable computer. Data were tabulated as the mean and standard deviation (SD) for continuous variables (e.g., blood urea nitrogen (BUN), C-reactive protein (CRP), D-dimer, etc.) and percentages and numbers for categorical variables (e.g., sex, race, obesity, etc.). Comparisons between patients exposed and not exposed to monoclonal antibodies were conducted using a two-sample t-test for continuous variables and Fisher's exact test for categorical variables. All tests were two-tailed with a statistical significance level of $\alpha = 0.05$. Binary logistic regression analysis was conducted to assess the association between risk factors and mortality. We selected our model through stepwise logistic regression and assessed its goodness-of-fit using Akaike Information Criterion (AIC). The R programming language (version 4.0.2; R Foundation for Statistical Computing, Vienna, Austria) was used for all statistical analyses.

Results

The mean age of all 246 patients was 82.4 years, ranging from 58 to 100 years. Fifty-two percent (52%) (n=129) of patients were female and 48% (n=117) were male. The mean ages of the exposed and unexposed groups were 81 years and 84 years, respectively. Approximately 5% (n=14) total patients died and approximately 6% (n=16) patients were transferred to the hospital due to clinical deterioration.

Ninety-two percent (92%; 148/160) patients of the exposed group were alive or not transferred to hospital as compared to 79% (68/86) of the unexposed patients (OR 3.23, 95% CI: (1.48, 7.31), p-value = 0.0032). Three percent (3%; 5/160) patients died in the exposed group as compared to 10% (9/86) patients in the unexposed group (OR = 0.25, 95% CI: (0.1, 0.85), p-value = 0.0257), indicating that patients exposed to LY-CoV555 are statistically significantly less likely to die than the patients who were not exposed to the monoclonal antibody. Exposed patients seem to have lower odds of hospitalization although this finding is not statistically significant at the 5% level.

Furthermore, the odds of having altered mental status (AMS) is significantly lower in the exposed patient group, whereas higher odds of coronary artery disease (CAD) were observed among patients in the exposed group. Variables such as obesity, congestive heart failure (CHF), chronic obstructive pulmonary disease (COPD), diabetes, and side effects were not associated with exposure status (Table 1).

Categorical Variables	Exposed Patients(n=160)	Unexposed Patients(n=86)	Odds Ratio (95% Confidence Interval)	P-value
Death	No 96.9%(n=155)	89.5%(n=77)	0.25 (0.1, 0.85)	0.0257
Hospital transfer	No 95.6%(n=153)	89.5%(n=77)	0.35 (0.15,1.08)	0.0793
Sex	Female 48.8%(n=78)	59.3%(n=51)	1.47 (0.9, 2.58)	0.1168
	Male 51.2%(n=82)	40.7%(n=35)		

Race	Black 16.9%(n=27)	18.6%(n=16)	0.93 (0.37,3.18)	0.8773
	Hispanic8.1% (n=13)	8.1%(n=7)		
	White 75%(n=120)	73.3%(n=63)		
Altered mental status (AMS)	No 68.1%(n=109)	25.6%(n=22)	0.16 (0.09,0.29)	<0.0001
Obesity	No 55.6%(n=89)	48.8%(n=42)	0.73 (0.45,1.27)	0.2894
Ventilator	No 95.6%(n=153)	94.2%(n=81)	0.61 (0.23,2.25)	0.6210
Chest pain	No 76.9%(n=123)	77.9%(n=67)	1 (0.56,1.96)	0.8624
Coronary artery disease (CAD)	No 41.9%(n=67)	57%(n=49)	1.76 (1.08, 3.1)	0.0248
Congestive heart failure (CHF)	No 72.5%(n=116)	62.8%(n=54)	0.62 (0.37,1.12)	0.1213
Chronic obstructive pulmonary disease (COPD)	No 60%(n=96)	66.3%(n=57)	1.25 (0.76,2.25)	0.3375
Cough	No 11.9%(n=19)	18.6%(n=16)	1.59 (0.83,3.47)	0.1600
Malaise / Weakness	No 22.5%(n=36)	22.1%(n=19)	0.95 (0.54,1.87)	0.9864
Diarrhea	No 79.4%(n=127)	81.4%(n=70)	1.06 (0.58,2.17)	0.7157
Diabetes	No 56.2%(n=90)	59.3%(n=51)	1.09 (0.67,1.92)	0.6487
Side effect	No 95.6%(n=153)	90.7%(n=78)	0.44 (0.18,1.46)	0.2364

TABLE 1: Categorical characteristics, clinical outcomes, and clinical features of patients who were exposed and patients who were not exposed to LY-CoV555 treatment, along with their respective odds ratios and p-values

Comparing patients who were exposed to LY-CoV555 to patients who were not exposed, after treatment, statistically significant mean differences were observed in the resolution of fever, resolution of shortness of breath (SOB), high lactate dehydrogenase (LDH), age, and pulse oximetry (POX). High LDH along with time to resolution of both fever and SOB tended to be lower on average in the exposed group, whereas the mean POX after treatment is higher in the exposed group. Other variables, such as high D-Dimer, high creatinine, and high troponin, were not significantly different between exposed and unexposed groups (Table 2).

Continuous Variables	Mean in the Exposed Group	Mean in the Unexposed Group	P-value
Time to resolution of fever (Days)	1.98 (0.07)	3.9 (0.13)	<0.0001
Time to resolution of shortness of breath (Days)	2.58 (0.07)	3.91 (0.13)	<0.0001
High lactate dehydrogenase (LDH)	578.33 (17.02)	693.09 (29.97)	0.0011

Pulse oximetry (POX) after Rx	95.51 (0.27)	92.98 (0.76)	0.0023
Age	81.42 (0.68)	84.42 (0.89)	0.0084
HighD-dimer	3.41 (0.3)	4.1 (0.43)	0.1933
High creatinine	1.65 (0.04)	1.75 (0.06)	0.2068
High troponin	0.62 (0.11)	0.73 (0.19)	0.5861
High ferritin	516.26 (19.57)	503.5 (25.11)	0.6891
High regular C-reactive protein (CRP)	9.22 (0.61)	9.05 (0.85)	0.8693
Pulse oximetry (POX) before Rx	95.12 (0.17)	95.09 (0.26)	0.9338
High blood urea nitrogen (BUN)	35.68 (1.01)	35.74 (1.44)	0.9729

TABLE 2: Clinical features with continuous measurements for patients who were exposed to and patients who were not exposed to LY-CoV555 treatment, along with their respective mean values and p-values

We used binary logistic regression analysis to assess the association between risk factors and mortality. High D-dimer (OR = 1.201, 95% CI: (1.094, 1.319), p-value = 0.0001), delay in resolution of SOB (OR = 1.914, 95% CI: (1.239, 2.956), p-value = 0.0034), chest pain (OR = 3.709, 95% CI: (1.246, 11.041), p-value = 0.0185), diabetes (OR = 3.587, 95% CI: (1.094, 11.748), p-value = 0.0348), and high troponin (OR = 1.224, 95% CI: (1.007, 1.488), p-value = 0.0424) were associated with increased mortality. A higher POX after treatment (OR = 0.783, 95% CI: (0.716, 0.855), p-value = <0.0001) tends to reduce mortality. Other variables, such as BUN, creatinine, CRP, ferritin, and LDH were not associated with mortality.

Four point three-seven (4.37%; 7/160) patients who received monoclonal antibodies had infusion-related side effects. These side effects were mild and included generalized weakness, nausea, chills, and diarrhea, and one patient had a mild rash. Other adverse events were self-limiting, and no interventions or hospitalizations were required. Neither anaphylaxis nor serum sickness was noted in the exposed group.

Discussion

COVID-19 remains a public health emergency. Despite ongoing efforts pertaining to reducing community spread by infection control barriers, social distancing measures, and widespread international vaccination efforts, the treatment of COVID-19 patients with acute illness remains a challenge. While direct cytopathic effects of the COVID-19 virus continue to be matters of investigation, there seems to be a consensus regarding the activation of endogenous immunological [17], inflammatory [18-19], and procoagulation pathways [20-21], which lead to adult respiratory distress syndrome (ARDS) and multiorgan failure as a large component of morbidity and mortality in severe COVID-19 syndrome. Thus, managing severe COVID-19 disease becomes complicated as treatment mandates the use of immunosuppressive agents; virus neutralization is not very effective at this stage.

A more reasonable approach is to prevent severe COVID-19 disease in outpatient management, either by active immunization through vaccination [22-23] or by viral neutralization in mild-to-moderate

COVID-19 disease, especially in high-risk individuals. Wider availability of early treatment interventions and improving outpatient management of COVID-19 syndrome is critical in order to alleviate the overburdened healthcare system.

Passive transfer of virus-neutralizing antibody, using convalescent plasma, has been attempted in hospitalized patients who are at high risk of progression to severe COVID-19 syndrome [24-25]. A retrospective study showed improved survival in patients with high COVID-19 antibody levels compared with patients with low levels [26]. Although reassuring, a big logistical problem remains to obtain sufficient amounts of antibody titer plasma donors.

Monoclonal antibodies target the receptor-binding domain on the COVID-19 virus' spike protein that binds to the ACE2 receptor [27], a receptor found on numerous cell types. Viral infection is mediated by the interaction between the viral spike and the ACE2 receptors found on numerous cell types and neutralizing monoclonal antibodies block this event [28]. Two independent groups of investigators have reported the findings of virus-neutralizing monoclonal antibodies. Studies assessing Bamlanivimab (LY-CoV555) and Casirivimab and Imdevimab together (REGN-COV2) - published in 2020 in October and December, respectively - showed a lowering of viral load and reduced rate of hospitalization when given to the patients with confirmed COVID-19 tests [15-16]. These results have led to a US-Food and Drug Administration (FDA) emergency utilization approval of virus-neutralizing antibodies for the treatment of mild-to-moderate COVID-19 infection in adults and pediatric outpatients >12 years of age. These therapies are additional tools that can be used to fight COVID-19 infection to prevent hospitalization, severe COVID-19 syndrome, and death.

Our study focuses on a population of elderly LTCF residents who, due to their co-morbidities and proximity to other patients, remain at a higher risk of poor COVID-19 outcomes. We conducted a retrospective analysis from the electronic medical records data of 246 patients in multiple LTCFs in New York. We compared baseline factors and outcome differences in the patients who received the COVID-19 neutralizing antibody, LY-CoV555, to those who did not receive it. LY-CoV555 treatment for patients at high risk for disease progression in LTCFs is associated with lower odds of mortality as compared to patients who did not receive it. Although not statistically significant, there was a trend towards a lower risk of hospitalization in antibody-treated patients. These findings are clinically significant, as lowering mortality and hospitalization due to COVID-19 disease is critical in alleviating the pandemic's burden on the U.S. Additionally, antibody treated patients also had better odds of fever resolution, dyspnea resolution, and improvement in POX, all indicators of clinical improvement [11].

The binary logistic analysis, which tends to describe the outcome based on baseline patient characteristics without comparing the treatment and the control group, suggested an association of higher mortality with what seems to be markers of more severe disease (for example, time to resolution of shortness of breath) and pro-coagulant activation such as D-dimer.

No serious adverse events occurred in any of the 162 patients in the LY-CoV555 group. Most of the adverse events were mild and transient, including diarrhea, nausea, headache, vomiting, and chills, and one patient with a mild rash. No change of vital signs was detected during the completion of the infusion. Therefore, the side effects related to infusions were relatively minor and were seen in 4.37% (7/160) of antibody-treated patients.

Originally the US-FDA issued an emergency use authorization (EUA) for monoclonal antibody therapy for the treatment of mild-to-moderate COVID-19 in adult and pediatric patients [29]. However, at the time

of this study (November 2020 - January 2021), variants of the COVID-19 virus only had a prevalence of about 5% in the U.S. In March 2021, prevalence has increased to approximately 20%. Therefore, as of April 16, 2021, the FDA revoked the single use of LY-CoV555 after Eli Lilly requested to do so in order to prevent possible treatment failures. Lily released a new dual monoclonal antibody treatment, LY-CoV555 with LY-CoV016 (Etesevimab), which confers better protection against U.K. variant strains that are now predominant in the US [30].

Limitation

The major limitation of our study is its retrospective design. We also only used LY-CoV555 and not REGNCOV2. Lastly, there are some differences in baseline characteristics of the case and control group.

Conclusions

Our analysis demonstrates that early treatment with monoclonal antibody LY-CoV555 was associated with decreased odds of mortality among high-risk patients in LTCFs with mild-to-moderate COVID-19 infection. Although not statistically significant, there was a trend toward a lower risk of hospitalization in LY-CoV555- treated patients. Further studies are needed to confirm these associations.

Additional Information

Disclosures

Human subjects: Consent was obtained or waived by all participants in this study. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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Pandemics, Covid-19 and Pharmacist's Role

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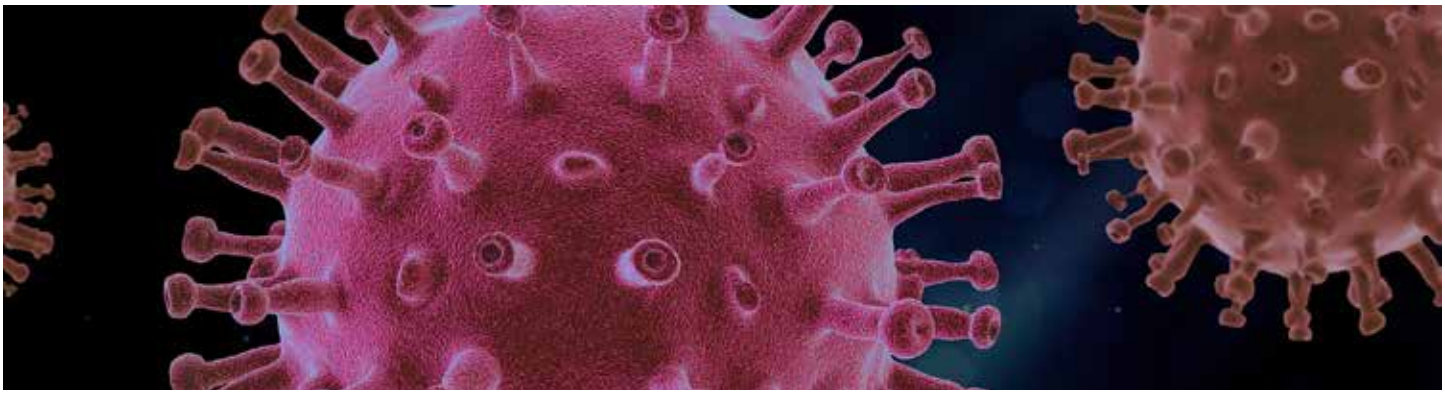


Pandemics and epidemics existed throughout the history of mankind. Although there is no real pattern of how often a pandemic can happen, it does happen fairly routinely. Some of the major pandemics were plague, bubonic plague, Smallpox,Cholera, malaria, influenza, avian flu, Spanish flu, SARS etc.

At this moment our focus is on Covid -19 since it is directly affecting all of us. It is generally accepted that this pandemic started in China. However there are different theories about the actual source of this infection. Some believe this originated in a lab in China and others believe it originated in a wet market in Wuhan, Hubei province, China. It is estimated that so far Covid 19 infected approximately 213 million individuals globally. About 4.46 million people died from Covid-19 infection. Most common cause of death is acute respiratory distress syndrome (ARDS). As of this writing there are several variants of Covid-19. The variants currently circulating in the USA are: Alpha, Delta and Gamma. Delta variation first appeared in India and then transmitted globally. This variation seems to be much more infectious and transmits easily from person to person.

Symptoms of Covid- 19 infection:
The symptoms vary for different persons. Symptoms appear 2-14 days after exposure. In general these are the typical symptoms:

Fever and chills	Body aches
Cough	Shortness of breathing
Headache	Muscle or body pain
Sore throat and throat pain	Fatigue and tiredness
Loss of taste or smell	Nasal congestion or runny nose
Nausea and vomiting	Stomach pain
Diarrhea	Excessive sleepiness

When emergency medical attention is urgent:
If oxygen level is 90 or below 90 supplemental oxygen therapy is urgent. Other symptoms needing urgent medical care are chest pain, unable to stay awake, severe leg pain (May indicate blood clots) etc.

How Covid -19 infection starts and spreads:
This virus spreads in three main ways:
1. Breathing in air next to an infected person who can exhale droplets or small particles that have the

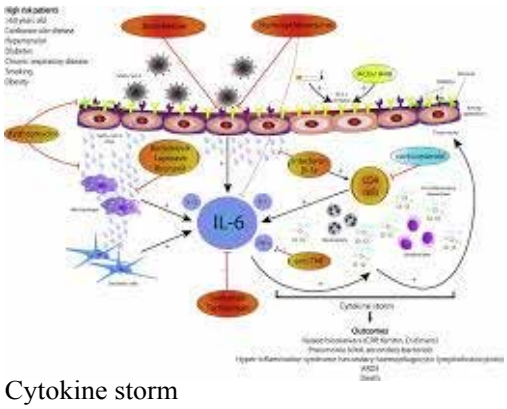
virus.
2. These small droplets or particles with viruses landing on their eyes, nose or mouth.
3. Touching a contaminated surface and then touching their eyes,nose or mouth with that contaminated hand.

How Covid-19 virus multiplies once they enter in the body:

The spike protein in SARS COV2 virus that causes covid 19 actually works as a key. This latches onto the ACE- 2 receptors on cells that are in our respiratory systems and in other areas of the body. Then it fuses with that cell and releases the RNA material inside our cell and hijacks our cell's mechanism and continues to multiply and then are released from these cells to infect the neighboring cells and eventually overwhelm the immune system. When this infected person cough, sneezes or speaks and if someone is near them that person is also infected and the cycle continues.

How SARS Cov-2 virus kills:

Although the vast majority of the Covid 19 patients develop only mild to moderate conditions there are about 5 to 6 percent who become seriously ill and about 1 to 2 percent of them eventually die. Those who are seriously ill many of them develop ARDS (Acute respiratory distress syndrome) and die from multiple organ failure. Also some develop blood clots, stroke and arrhythmia which can be fatal. Interestingly this ARDS is caused by our own immune system. It is due to the cytokine storm caused by our overactive immune system. Here are the cascade of events:



Cytokine storm

Sars Cov-2 virus enters the body via Ace-2 receptors in the mouth, throat and travels to lungs and starts multiplying and infecting other cells. At one point fluid builds up in the alveoli and the capillaries around it and macrophages and T cells are activated and all types of cytokines are released by macrophages and other immune cells to fight the covid 19. However, these cytokines also attack tissues in lungs and other organs of the infected person and ultimately cause death. In a research paper it was shown that with covid-19 our immune system can produce as much as 50 times more cytokines then with Zika or west nile virus.


Covid 19 affected lungs (Broken glass image)

Management of Covid 19:

Fortunately most individuals will develop only minor symptoms. They just need to take rest, keep monitoring oxygen levels and use tylenol or cough and cold medication to treat the symptoms. If someone starts to develop excessive coughing, shortness of breathing, chest pain, confusion, excessive sleepiness and the oxygen levels goes below 95, medical attention is required. Anytime oxygen level is 90 or below 90 it is critical and urgent medical care and supplemental oxygen is recommended. At this stage the following blood tests are recommended.

1. C-reactive protein:
   This is a very important biomarker during Covid 19 infection. This is secreted by the liver and tells us about the inflammatory situation in the body. Normal C-reactive protein level is less than 10mg/L. If C-reactive protein level is significantly high with Covid 19 then it might be an indication that steroid therapy should be initiated. All the research shows that dexamethasone is the best steroid during covid. Typically a dose of 6 mg daily for 7-10 days is recommended to prevent cytokine storms.

Before starting any steroid it is important to check the C-reactive protein so that it is not started until the body shows significant indication of inflammation. If the steroid is started too early then this will interfere with the initial immune response of the person at the same time if it is initiated too late then the cytokine storm might be already in progress and could have caused significant lung damage or other organ damage. In general for most patients there is no need for steroids during the first 5-6 days.

2. IL-6 :
   Higher levels of IL-6 seem to be associated with inflammatory response, respiratory failure, needing mechanical ventilation and increased mortality in Covid - 19 patients.

3. Ferritin:
   This is another biomarker of inflammation. Increased level of ferritin indicates that the patient is experiencing inflammation.

4. D-Dimer:
   D-dimer is one of the protein fragments produced when a blood clot is dissolved. An elevated level indicates that there are some blood clotting activities in the body. So an anticoagulant like lovenox is indicated. For most clients typically a dose of 40 mg lovenox daily would be good but higher dosing would be needed for some.

5. LDH (Lactic acid dehydrogenase):
   Increased level of LDH indicates cell membrane destruction. It is a strong indication of lung muscle involvement in Covid-19.

6. CBC :
   CBC gives us valuable information about cell count.

7. Serum creatinine:
   Kidney is the second most vulnerable organ after lungs. So it is important to monitor creatinine level to rule out any kidney involvement.

Medications currently in use for Covid 19 management:

Monoclonal antibodies:

Monoclonal antibodies are very useful in helping high risk patients to prevent hospitalization and recover quickly. To qualify for this treatment, the patient must have symptoms for about 5 days, not on oxygen therapy and not hospitalized. If the person had Covid 19 symptoms for 10 days or more then that person is no longer eligible to receive monoclonal antibodies. Recent data shows that Regeneron does work against the delta variant of Covid 19.

Remdesivir:

Remdesivir is the only medication that is approved at this time to treat Covid 19.
This approval was based on the observation that anyone receiving the remdesivir seems to recover faster.
Dosing: 200mg by IV on day 1.
100mg by IV for 4 more days.
If there is a need another 5 days can be given.

Dexamethasone:

Once it is determined that inflammation is present dexamethasone is given to prevent cytokine storm.
Dosing: 6 mg daily for 7-10 days.

IL-6 inhibitors:

FDA approved 2 classes of IL-6 inhibitors at this time and these could be useful to prevent cytokine storms and death. These are sarilumab ,tocilizumab and Siltuximab.

Vitamin and supplements used in Covid 19

Vitamin D:

Research shows that low levels of vitamin D can adversely affect the immune system and can make a person more susceptible to Covid-19 infection, severity and outcome.

Zinc:

Zinc is the second most important supplement after vitamin D. Low levels of zinc has been associated with impaired immune function and severity and mortality with covid 19.

Vitamin C:

Vitamin C is an antioxidant and seems to help with many viruses by positively impacting the immune system. In Covid-19 there had been use of IV vitamin C. There is no concrete evidence that IV vitamin C helps with Covid 19. Recently a single case was discussed in lancet about the positive impact of vitamin C in a septic Covid 19 patient. More studies are needed in this area.

Long Covid:

There are many Covid-9 patients who seem to have lingering symptoms of Covid 19 even after more than 12 weeks. They do not have any active infection and still have many symptoms associated with Covid 19.

This is considered a long Covid. There is no conclusive study about the real reason for this. However, there are several theories floating involving autoantibody and immune system. More research is needed in this area.

Covid 19 research:

Although there are several very effective vaccines available as of now only 49.6% of the US population are fully vaccinated. There is vaccine hesitancy in a significant number of the US population. So search is on for an oral agent that can help to reduce hospitalization and death. NIH reported that a drug called TEMPOL (Adamis pharmaceuticals) has the ability to shut down a key enzyme that the SARS CoV-2 virus needs to copy itself. More studies are needed to see if the drug can prevent serious Covid-19 infection in people.

Pharmacists role in Covid 19:

As a very accessible and trustworthy healthcare practitioner, pharmacists can play a very important role in helping patients with Covid-19 PCR tests, rapid tests, vaccines and patient education. This also presents a unique opportunity for the community pharmacists to develop new streams of revenues while providing valuable services to the community.

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Photos From NYC 2021 Ticker-Tape parade

By Dr. Parvin Rahman

NYC held a ticker tape parade on July 7, 2021, nearly 16 months since the beginning of the pandemic. It was an emotional, confetti filled walk down Manhattan's iconic Canyon of heroes to honor the heroes of the pandemic who guided NYC navigate the worst public health crisis in more than a century. I was truly honored to have been a part of the ticker tape parade along with Mohammed Taher (Abir) walking alongside other essential workers/ healthcare heroes. Abir wrote a beautiful article about our shared experience at the parade, here are some photos highlighting our experience:


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