



Word from the Director

Dr. Bruce J Kirenga



Dear Readers,

I thank you so much for choosing to read our Newsletter and welcome you to enjoy the contents of this issue in which we highlight MLI's involvement in combating COVID-19, call it a COVID-19 issue.

In line with our vision of securing an African with health lungs, we have been at the frontline of the fight against COVID-19 since it broke out in Uganda. MLI staff have been actively involved in several strategies, contributing to research, training and clinical care as stated in our mission: 'lung health research

that integrates disease prevention, clinical care and training.'

As we join scientists around the globe to examine this novel disease, I continue to encourage the public to follow the ministry of health guidelines: maintain hand hygiene by frequently washing your hands with soap or use an alcohol-based hand rub; when in public spaces, use a face mask to cover your mouth and nose and maintain a distance of two meters or be as distant as practically possible; and avoid touching your eyes, nose and mouth. We encourage the public to seek medical advice if you have fever, cough and difficulty in breathing.

I wish you an enjoyable read.

Science for healthy lungs as we build for the future

COVIDEPI Preliminary Study Results Press Conference

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LEFT TO RIGHT: Prof. William Bazeyo, Prof. Barnabas Nawangwe and Dr. Bruce Kirenga during the Media Press Conference on May 26, 2020 at Makerere University, Uganda

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Word from the Editors

Although the world has had several pandemics in the past century, COVID-19 stands out because of its transmissibility and the impact it has had on daily living conditions of people globally, 'the new normal.'

As researchers around the world investigate existing products and develop new ones for the prevention and/or treatment of COVID-19, we share details on two studies at MLI (COVIDEPI and COVIDIT) and give advice to patients suffering from chronic lung diseases during this pandemic.

This quarterly newsletter is available on MLI's website: mli.mak.ac.ug. Subscribe for this newsletter by emailing news@mli.mak.ac.ug with 'Subscribe' in the subject. For any comments or questions please reach out to the editorial team.

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Makerere University releases results describing characteristics and outcomes of index patients diagnosed and treated for COVID-19 in Uganda

On Tuesday May 26, 2020, Makerere University (Mak) Management converged to share findings from the study whose aim was “to detail characteristics and treatment outcomes of the Coronavirus (COVID 19) pandemic patients in Uganda”. Coronavirus being a novel and rapidly changing pandemic, it was essential that early lessons are obtained and synthesised. These lessons directly feed into the clinical care guidelines and eventually contribute to the country’s interventions. With funding from the Government of Uganda through the Makerere University Research and Innovations Fund (Mak-RIF), this study was successfully executed. The multidisciplinary research team was coordinated through the Makerere University Lung Institute led by Dr. Bruce Kirenga, Director MLI and Prof. William Bazeyo, Acting Deputy Vice Chancellor (Finance and Administration) -Mak as Principal Investigators. Other investigators were from Entebbe Regional Referral Hospital, Johns Hopkins University, Baltimore (USA), Uganda Peoples Defence Forces, The AIDS Support Organisation (TASO), Mulago National Referral Hospital, the College of Health Sciences and Ministry of Health, Uganda. This study was conducted on the first 56 COVID-19 at Mulago National Referral hospital and Entebbe Regional Referral hospitals. Patient enrolment has continued but below, we exultantly share preliminary findings:

The average age of the patients in Uganda was 33 years which is far lower than what has been reported elsewhere. In Wuhan China, for example, the average age is 59 while this is even higher in the New York (USA) at 63 years. Older patient have higher risk of severe forms of disease and ultimately, poor treatment outcomes.

Regarding patient presentation, the symptomatic COVID-19 patients’ most common symptoms were fever (21.4%),

cough (19.6%), runny nose (16.1%), headache (12.5%), muscle aches (7.1%) and fatigue (7.1%). However, more than half of the patients did not have any of these symptoms at diagnosis. These patients were largely travellers returning from abroad or contacts of the confirmed/symptomatic patients. Unlike our patients, 80% of hospitalised patients in the western world were symptomatic.

To understand the extent of damage, our research team performed a wide range of tests including complete blood count, kidney function tests, troponin, lactate dehydrogenase which looks for signs of damage to body tissues, and C reactive protein-CRP. We found that 10.6% of the patients had low white blood cells, 26.3% had low platelets, 12.8% had evidence of liver damage, 12.2% had evidence of systemic inflammation and 43% had evidence of nonspecific tissue damage. The electrical heart activity was also checked with the electrocardiograph (ECG). All patients had normal ECG with the exception of one who had a very slow heart (bradycardia). We checked lung damage with Chest X-rays (CXR) and computed Tomography scans (CT). Three patients had significant lung damage on CT and CXR; while one of them had low oxygen saturation.

About a quarter of the initial patients reported other existing medical conditions. Most of these were non-communicable diseases such as high blood pressure which was the most common comorbid disease recorded in up to 28% of the patients and diabetes which accounted for 11%.

At admission, only 2 patients met the classification of severe disease (patients with severe respiratory symptoms requiring oxygen therapy) while the rest had mild disease. Temperature and oxygen saturation were monitored three times a day. All the patients recovered without the need for admission to Intensive care unit (ICU) or ventilation. This is contrary to what has been observed elsewhere, where 5% of COVID

-19 patients required ICU care. To-date, there is no known cure for COVID-19. The current treatments are meant to alleviate symptoms while waiting for the body to mount an immune response to fight off the infection. The patients were able to recover on supportive care through managing the symptoms, treatment with antibiotics for those who had evidence of bacterial infection, hydroxychloroquine and vitamin C. In instances where the patients had comorbid conditions, proper management of these conditions was part of the treatment.

In summary the initial group of COVID-19 patients diagnosed in the country presented with mild disease and exhibited a clinical course of disease that is quite different from what has been observed elsewhere. Imaging and laboratory tests are critical in management of this disease. Prompt identification of patients and initiation of treatment could help to prevent the development of severe forms of the disease. Frequent monitoring of the oxygen saturation is also critical for rapid patient identification and treatment.

In light of the increasing number of cases in the country, these findings help in informing the national preparedness plan for COVID-19 (capacity building of health workers in clinical care for COVID-19, the required logistics, continuous research). Upon completion of the study, the team recommended that

- Testing for COVID-19 is expanded
- Include other symptoms like rhinorrhoea for screening since almost half of the confirmed cases did not have classic symptoms
- Make clinical, laboratory and imaging tests available at all COVID-19 treatment centres to support proper severity grading
- Routine pulse oximetry in the management of COVID patients
- Increase the capacity to diagnose and treat non communicable comorbid conditions across the country as part of COVID-19 response

Kick-Off of the Coronavirus Immune Therapy (COVIDIT) Study

Makerere University through its center of excellence for Lung science, the Makerere University Lung Institute, and in collaboration with Uganda Peoples Defense Forces (UPDF) Medical Services, Uganda Blood Transfusion Services (UBTS), Mulago National Referral Hospital and Joint Clinical Research Center has initiated a project to assess the feasibility, safety and efficacy of COVID-19 Immune Therapies in Uganda. The project is code named Coronavirus (COVID-19) Immune Therapy (COVIDIT). This team of researchers is harvesting blood from individuals who have recovered from COVID-19 and processing it further in preparation for use as treatment for COVID-19 in Uganda.

The first phase of this project is funded by the Government of the Republic of Uganda through Makerere University Research and Innovations Fund (Mak-RIF) <https://rif.mak.ac.ug/>.

Tuesday June 16th 2020 marked the kick-off of the plasma donation and processing phase in which individuals that have recovered from COVID-19 undergo the donation exercise, with subsequent processing of the collected samples. The donation processes are managed by UBTS following usual blood donation standards. UBTS will store the plasma and distribute it for use in the trial. The kick-off of the donation exercise was witnessed by representatives from the partner institutions and key stakeholders including Dr. Charles Olaro, Director Health Services at Ministry of Health, Kampala Uganda. Dr. Olaro was representing Hon. Dr. Jane Ruth Aceng, Uganda's Minister of Health. A plasma donation centre run by UBTS has been established in the newly renovated Mulago Hospital. The project kick off engagement was held at Lower Mulago National Referral Hospital Private Outpatients Compound.

Ms. Laura Nagasha, who recovered from COVID-19 was the first donor and when asked what motivated her to join in the



LAUNCH: Prof. Isaac Kajja (MakCHS Deputy Prinipal), Dr. Dorothy Kyeyune (ED ,Uganda Blood Transfusion Services), Brig. Dr. Ambrose Musinguzi (Chief of Medical Services, UPDF), Dr. Olaro Charles (Director Health Services, Ministry of Health), Prof Bazeyo (Deputy Vice Chancellor, Makerere University) and Ms Harriet Adong (Director Communication and Knowledge Management, Mak RIF) at the COVIDIT launch

strive she said 'When I was called upon to join in this research, I never hesitated because if I can be the source of treatment for others, why not run to support the cause? I am here because I want us to quickly work together to find the treatment for Coronavirus'.

To-date June 17, 2020, four donors have turned up. 'We appeal to all those individuals who have recovered from COVID-19 to come and donate blood so that we can together work towards kicking COVID-19 out of Uganda, the region and globe by offering treatment' noted Prof. William Bazeyo, Deputy Vice Chancellor (Finance and Administration) at Makerere University and Chairman Makerere University Research and Innovations Fund (Mak-RIF). Prof. Bazeyo thanked the researchers, partners and above all the Government of the Republic of Uganda for funding research and innovations at Makerere University through Mak-RIF. He also thanked the Media for continuously relaying all the necessary messages to the public and urged them to always look out for, and share facts.

Dr. Bruce Kirenga, Director of the Lung Institute and Project Principal Investigator shared the Project brief noting that the project was initiated in view of emerging evidence to support the use of convalescent plasma (CP) for the treatment of COVID-19 especially

among severe and critical forms of disease with improved survival. The lack of other proven therapies for COVID-19 in Uganda and the availability of COVID-19 survivors in the country provided impetus for this project. The project has 4 main work packages (WP);

WP1. Plasma Donation, Processing and Storage whose overall objective is to assess the feasibility of collecting, processing and storing COVID-19 convalescent plasma that will later be used to for an investigative assessment of its efficacy in treating patients with COVID-19.

WP2. COVID Convalescent Plasma Therapy Trial whose overall objective is to assess the feasibility, safety and efficacy of COVID-19 CP in treatment of COVID-19 in Uganda.

WP3. Monoclonal Antibodies Manufacturing whose overall objective is to isolate potent monoclonal antibodies from peripheral B cells of Ugandan COVID-19 survivors for use in the prevention and treatment of COVID-19.

WP4. COVID-19 Survivor Registry whose overall objective is to establish a COVID-19 survivor registry to support the study of the long term impact of SARS-CoV2 virus infection on its survivors.

By Ms. Harriet Adong

IMPACT OF THE COVID-19 PANDEMIC ON PEOPLE WITH CHRONIC LUNG DISEASE

Chronic lung disease (CLD) is a general term used to describe a group of lung diseases that affect the airways and other structures of the lung, leading to breathing difficulties. Although they are not curable, various forms of treatment help control symptoms and consequently improve quality of life for people with these diseases. Some of the commonest CLDs include Chronic Obstructive Pulmonary Disease (COPD), asthma, lung cancer, Post-TB lung disease and interstitial lung diseases.

When the deadly Corona Virus Disease 2019 (COVID-19) was declared a pandemic on 12th March 2020, the world as we knew it changed. As a way of controlling the spread of the virus, the World Health Organization (WHO) as well as other global health organizations like the Centre of Disease Control (CDC) and the Ministry of Health (Uganda) encouraged individuals to take care of their own health and protect others through the following;

- Avoid touching eyes, nose and mouth with unwashed hands
- Hand washing with soap or alcohol-based hand sanitizer
- Wearing of a cloth or surgical face masks in public settings, and when around people who don't live in the same household.
- Social distancing by keeping at least 2 meters between yourself and other people who are not from your household.

WHY DOES IT MATTER TO PEOPLE WITH CHRONIC LUNG DISEASE?

People with chronic lung disease are in the high-risk category for severe illness and complications from COVID-19. They need to take extra precautions to protect themselves and those around them from contracting the virus.

However, the physical barrier of the mask makes it harder to take in air. The



mask also traps some carbon dioxide as one breaths out, meaning that one breaths in air that is warmer and moister. Add a compromised respiratory system to the equation and a mask will increase the sense of breathlessness, resulting in a very uncomfortable and suffocating feeling in individuals with chronic lung disease. This leaves people with chronic lung disease stuck between the rock a hard place because albeit being uncomfortable, these masks are meant to protect them as well as those around them.

Additionally, diagnostic tests of the respiratory airways tend to generate a lot tiny droplets in the breath, known as aerosols. During the COVID-19 pandemic, the commonest of such respiratory investigations including Spirometry, Fractional Exhaled Nitric Oxide (FeNO) which measures airway inflammation, Bronchoscopy and sputum induction were temporarily suspended to minimize the spread of the virus. This has affected timely diagnosis and appropriate management of certain lung diseases. This comes at a time of heightened public awareness when any cough or sneeze is treated with suspicion from both the general public and healthcare workers at facilities that may not have adequate personal protective equipment (PPE) to investigate or manage suspected COVID-19 patients.

ADVISE FOR PEOPLE WITH CHRONIC LUNG DISEASE

While COVID-19 vaccine development is in the works, CLD patients even more than the general public have to effectively protect themselves from

catching the corona virus. This can be achieved to a greater extent by:

- * Staying at home. People with chronic lung disease should avoid public places as much as possible and if one decides to go out, they should endeavour to keep a two-meter minimum distance between themselves and other people. Unnecessary movement into public and crowded places should be avoided at all costs.
- * Continue practicing the COVID-19 safety guidelines (hand hygiene, avoid touching your face with unwashed hands, sneezing and coughing etiquette)
- * Continue taking your medicines as prescribed by the doctor, making sure you always have at least a 30-day supply of your medicines.
- * Avoid triggers that make your symptoms worse
- * Contact your healthcare provider if you have concerns about your condition or feel sick
- * If you have Asthma or COPD, make sure you continue taking your inhalational medicines to keep the symptoms under control
- * Try to exercise as much as possible; exercise is good for your lungs. Patients should try walking or jogging for the purpose of their health while being keen on the distance between them and others.

By Dr. Wincelous Katagira