

The Impact of Covid-19 on Forensic Medicine and Clinical Toxicology Practice

Under Patronage of

President of Mansoura University Prof. Ashraf Abd Elbaset Dean of Mansoura Faculty of Medicine Prof. Ashraf Mamdouh Shoma Vice-Dean for Post Graduate and Research Prof. Tamer Samir Abo Elsaad The Conference Chairman Prof. Amal Abdel Salam Elbakary (Head of Forensic Medicine& Clinical Toxicology Department) The Conference Vice-Chairmen

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Head of the conference

Dear colleagues

On behalf of the Forensic Medicine and Clinical Toxicology Department, Mansoura

University, I want to extend our warmest greetings to all those attending the International Virtual Conference titled "**The Impact of Covid-19 on Forensic Medicine and Clinical Toxicology Practice**" that is held on 25th September 2021 through Zoom. We are honored to be hosting you.

Our conference will provide important insights to the delegates in the field of Forensic Medicine and Clinical Toxicology that will add to research related discussions and planning for future research collaboration, sharing and exchange of knowledge in these fields. Your cooperation is greatly appreciated.

Once again, welcome to Mansoura and I hope you enjoy the conference.

Prof. Amal Abd El-Salam El-Bakary

Conference Chairperson

Head of Forensic Medicine and Clinical Toxicology Department, Faculty of Medicine, Mansoura University









Conference Timetable

Cairo Time	Title	Speakers
10:00-10:10	Opening & Welcome Speech	Prof. Ashraf Mamdouh Shoma Prof. Tamer Samir Abou El-saad Prof. Amal Abdel Salam El-Bakary
10:10-10:20	The Holy Quran	
10:20-10:40	An Egyptian Prospective Impact of COVID -19 Pandemic on Forensic Practice	Prof. Dina Ali Shokry
10:40-11:00	Challenges faced by the forensic crime scene investigators: Sharing my hands-on crime scene experience.	Prof. T. Nataraja Moorthy
11:00-11:20	Forensic Medicine Experience during Covid Pandemic in Malaysia	Dr. Nur Ayutimasery Bt Abdullah
11:20-11:40	Violence against women during COVID-19 pandemic	Prof. Sahar Abd Elaziz Eldakroory
11:40-12:00	Discussion	
12:00-12:30	Break	
12:30-12:50	Polarity Mapping: A Mindset Shift after COVID19	Prof. Doaa Abd El Wahab El-Morsi
12:50-1:10	Translational Research in Biomedical field	Ass. Prof. Mohamed Salama

1:10-1:30	"Forensic Practice during Covid Era Things never be the Same Again"	Dr. Mohammed Hassan Gaballah
1:30-1:50	The Ethical Dilemma of Using Contact Tracing Apps During COVID- 19. Do the Benefits Outweigh the Risks?	Dr. Shaimaa Ahmed Ali Shehata
1:50-2:10	COVID 19 outbreak and lockdown: role of telemedicine in toxicology.	Dr. Reem Khaled Aboelmaaty
2:10-2:30	Validity of Vital Signs, Coma Scales and Modified APACHE Score in Prediction of Prognosis and Outcome of Acutely Poisoned Patients	Dr. Meray M. Shokry Zaghary
2:30-2:50	Ameliorative effect of selenium and vitamin E on arsenic induced cardiac damage in adult male albino rat: Histological and biochemical study	Dr. Heba Hussein Rohym
2:50-3:10	Reducing the risk of exposure to SARS-CoV-2 Research	Dr. Mohamed Adel Ghorab
3:10-3:30	Experience of Dakahlia medical syndicatein legal aspect to support physicians in Dakahlia governor and during Covid 19 period.	Dr. Ibrahim Osama El Shahat
3:30-3:50	Discussion	
3:50-4:00	Closure	



Forensic Practice in Egypt Lessons Learnt: COVID-19 Pandemic

Prof. Dina A. Shokry

The COVID-19 pandemic has forced forensic practitioners to consider how we perform their normal duties, especially when those duties involve humans. The potential for contracting the virus from working in close contact with living sufferers is high, and we have yet to fully determine the risk of infection from the deceased. In an attempt to support the community, the present work will go through duties and responsibilities of the forensic practitioners in Egypt, what are the procedures for handling dead from COVID-19 according to the Egyptian Ministry of Health and Population (MOHP) guidelines and the lessons learnt from this experience and the future directions and recommendations to resolve the challenges encountered in dealing with cases of mass fatalities during pandemics.

Prof. Dina Ali Shokry

Professor of Forensic Medicine and Clinical Toxicology, Cairo University, Head of Forensic Medicine and Clinical Toxicology Department, Armed Forces College of Medicine,

Member of the Scientific Research Committee of the National Council for Women



Challenges faced by the forensic crime scene investigators: Sharing my hands-on crime scene experience

Prof. T. Nataraja Moorthy

A crime scene is any physical scene, anywhere, that may provide potential evidence to an investigator since it is a place of crime committed. Crime scene is a treasure of information which contains lot of information in the form of visible and invisible physical evidence. Forensic crime scene investigation, particularly when dealing with dead body, is a complicated endeavour, taking an immense amount of time at a scene. Sometimes, the dead body posture may cause confusion or complication and is difficult to explain, unlike TV shows, crime scene investigator solved the mystery with super-intelligent powers within an hour or less. Forensic Crime Scene Officers are mostly Forensic Scientists, but Police Officers are also doing forensic work in crime scenes in country like Malaysia. Based on my crime scene experience, I am confident that the role of Forensic Medicine Expert is also important in crime scenes, along with Forensic Scientist, whenever dealing with dismembered body parts and skeletons to overcome the challenges and to get a positive decision or even conclusion in the crime scene itself. Incidences wherein, Forensic Medicine Experts joined with me as a forensic team member in the crime scene examination. and solved the crime mystery. I am sharing herewith my hands-on crime scene experience and the challenges faced during my career in India.

Prof. T. Nataraja Moorthy,

Professor of Forensic Sciences, Faculty of Health and Life Sciences, Management and Science University, Shah Alam, Selangor,Malaysia. Handphone & WhatsApp: +6 0129224610 Email: Nataraajan64@msu.edu.my



Forensic Medicine Experience during Covid-19 Pandemic in Malaysia

Dr Nur Ayutimasery Bt Abdullah

Malaysia is a developing nation with a population of 32 million and a two-tier health care system consisting of both a government base universal healthcare system and a co-existing private healthcare system. The emergence of the 2019, SARS-CoV-2 pandemic had placed an undue stress on the global healthcare system. Malaysia, was not exempted, as the third wave of the pandemic fuelled by the emergence of new COVID-19 variants, ravaged and rattled the healthcare system leaving it in disarray as we scrambled to deal with the large number of cases and hospital admissions. With that, Malaysian hospitals had to deal with a huge number of deaths from the disease within a limited period of time. A total of 16942 people had lost their lives due to Covid-19 in Malaysia, of which the bulk 15421 passed away between the months of May to the end of August. This talk intends to share the experience of Hospital Tengku Ampuan Rahimah Klang, a suburban hospital in the Klang Valley, in dealing with deaths from Covid-19 during this trying period. Aspects covered includes the financial, safety and administrative challenges faced by the Forensic Medicine Department, mainly issues on transporting bodies from ward to mortuary, body storage, management of brought in dead (BID) bodies, managing shortage of manpower and how we handled backlogs of dead bodies.

Dr Nur Ayutimasery Bt Abdullah

Head of Forensic Medicine Department, Tengku Ampuan Rahimah Hospital, Klang, Malaysia.



Violence against women during COVID-19 pandemic

Prof. Sahar Abd Elaziz Eldakroory

Violence against women and girls is a human right violation. Since COVID-19 has been declared a global pandemic, there are unintended, negative consequences. The COVID-19 pandemic led to strict public health policies of social distancing and a dramatic reduction in activity and mobility. The pandemic, like other kinds of disasters, exacerbates the social and livelihood stresses and circumstances that lead to intimate partner violence. Since the outbreak of COVID-19, emerging data and reports from those on the front lines, have shown that all types of violence against women and girls, particularly domestic violence, has intensified.

One of three women worldwide experiences physical or sexual violence. Globally between 38%-50% of murders of women are committed by intimate partners.

It is critical to address the increase of violence against women during COVID-19 through accelerated efforts of governments, international and national civil society organizations.

Violence against women and girls is preventable. To prevent violence, alleviate the risk factors and amplify the protective factors.

Prof. Sahar Abd Elaziz Eldakroory

Prof of Forensic Medicine and Clinical Toxicology,

Faculty of Medicine, Mansoura University

Founder of Forensic Consultation Center, Mansoura University

Executive director of Toxicology Laboratory, Mansoura Emergency Hospital.

Member of the National Council for Women.



Polarity Mapping: A Mindset Shift after COVID19

Prof. Doaa Abdel Wahaab Elmorsy

Polarity is defined as interdependent pairs of values that need each other over time to create positive and sustainable results. Polarity management will give organizational leaders one of most powerful tool to navigate to success. It is a dynamic visual functioning under the assumption that the poles, the quadrants that make up the map, are interconnected, the maps include weights of upsides and downsides that emerge when looking at a problem. Each side is incomplete without the other side, portraying a realistic feel to problems that surface in realworld scenarios.

Polarity maps consist of four quadrants, known as poles. These poles each have an upside and downside. The upsides, or "positives", are the upper two quadrants. The downsides, or "negatives", are the lower two quadrants.

Upsides are the positive results when focusing on a pole. Downsides are the negative results that emerge if you focus too much on one side. Alternatively, these can be seen as costs when weighing the potential actions taken to solve a problem.

It could be concluded that, polarities are two different values or points of view that are interdependent. Even though the values are very different and there is tension between them, they need each other. Also, the oscillation between the poles taps the energy to reach the higher goal.

Prof. Doaa Abdel Wahab El Morsi

Professor of Forensic Medicine & Clinical Toxicology, Member of Medical Education Department, DHPE, JMHPE, FAIMER Fellow ASU MENA FRI, 2020. TQM and Healthcare and Hospital Management, ERC instructor Certified Professional Trainer (IBCT), Mansoura Faculty of Medicine, Egypt Email: Dr.doaa2014@outlook.com



Translational Research in the Biomedical Field

Ass. Prof. Mohammed Mosaad Salama

The presentation will be exploring the plans to cross the gap between basic research and clinical application. The translation of basic scientific achievement into practical / clinical applications involves many challenges. Starting with the lack of trust between lab scientists and clinicians, the lack of funding for such initiatives and the difficulties in getting a community buy in for the new developments. The lecture will highlight the differences between T1 and T2 as well as the procedures to be followed for addressing accompanied problems. Finally, I will highlight some real life examples based on the experience of the Egyptian Network for Neurodegenerative Diseases (ENND).

T1 (type 1 of translational research).

T2 (type 2 of translational research).

Ass. Prof. Mohamed Salama

Assistant Professor of Forensic Medicine and Clinical Toxicology, Associate Professor and Associate Director of Institute of Global Health and Human Ecology (IGHHE), (AUC), Egypt. Atlantic Senior Fellow for Equity in Brain Health, Global Brain Health Institute (GBHI), Trinity College Dublin (TCD), Ireland Email: Mohamed-Salama@aucegypt.edu



Forensic Practice during COVID era, Things Never Be the Same Again

Dr. Mohammed Hassan Gaballah

COVID-19 pandemic had a large and negative impact on all aspects of life including medical practice. Consequently, the ordinary and simple practices in forensic field became more complicated and hazardous. Nevertheless, the dilemma was specially in cases with unwitnessed deaths and persons with unknown identities. Therefore, basic modifications in forensic autopsies were applied to avoid accidental transmission of COVID infection to autopsy team. Modifications include using personal protective equipment, procedures inside autopsy rooms, and handling of COVID-19 cadavers. In addition, radical changes had been introduced to the manner of dealing with dead bodies of COVID-19 patients especially in Islamic countries.

Mohammed Hassan Gaballah

PhD in Forensic Medicine, Nagoya City University, Japan Consultant of Forensic Medicine and Clinical Toxicology Member of the Japanese Society of Legal Medicine Email: drgaba97@hotmail.com

Reducing the risk of exposure to SARS-CoV-2



Dr. Mohamed Adel Ghorab

Reducing the risk of exposure to SARS-CoV-2, the virus that causes COVID-19, relies on effective cleaning and disinfection, along with public health strategies like testing and social distancing. This research will help states & territories, tribes, and local governments, including public health agencies, guide homeowners, business owners, and others reduce the risk of exposure. This webinar will highlight our research at EPA working on with CDC colleagues, including:

Environmental Cleanup and Disinfection: Reducing the risk of exposure to SARS-CoV-2 relies on effective cleaning and disinfection. EPA researchers are assessing the use of disinfectants on many different surfaces and objects. Our researcher will also determine the best environmental sample collection methods and the limits of detection for SARS-CoV-2. To determine the effectiveness of these approaches, researchers are also developing a method to quickly analyze surface samples for the live virus, both before and after the disinfection process. Strategies to decontaminate PPE will also be developed and evaluate innovative ways to disinfect large spaces. Possible approaches include using alternative methods to kill viruses such as ultraviolet light (UV), ozone, and steam, and promising disinfectant application methods such as electrostatic sprayers or foggers.

Wastewater Virus Detection: Researchers are studying whether SARS-CoV-2 can be detected in wastewater. This work will focus on understanding viral loads, or how much of the virus is present, using a combination of molecular and culture-based methods to characterize SARS-CoV-2 in wastewater. Whether it is in an infectious state, and how

it moves through the wastewater system. This information could help public health agencies by acting as an 'early warning system' and identifying an outbreak in a specific community.

Additionally, alternative methods that supplement regular cleaning and disinfection are being investigated by EPA researchers or their use in the ongoing COVID-19 pandemic and also they are building on a foundation of world-class research by applying their knowledge to reduce the risk of exposure to SARS-CoV-2, the virus that causes COVID-19.

Dr. Mohamed Adel Ghorab

Toxicologist Scientist, U.S. Environmental Protection Agency(EPA), Office of Chemical Safety and Pollution Prevention (OCSPP). Visiting Faculty/ Mentor at University of California, Davis, School of Veterinary Medicine Toxicology Mentoring and Skills Development Training Program (ToxMSDT). Vice Chair Executive committee- Society of Toxicology (SOT) (2021-2023) Vice Chair of the PDA/Early career Toxicologists- Society of Toxicology (SOT)

The Ethical Dilemma of Using Contact Tracing Apps During COVID- 19: Do the Benefits Outweigh the Risks? Dr. Shaimaa Ahmed Ali Shehata

In 2019 the COVID-19 pandemic emerged with great fear of spreading the contagious virus. A total lockdown has been imposed globally to prevent uncontrolled infection. Several countries have adopted contact tracing artificial intelligence digital applications in an attempt to identify individuals who have been exposed to coronavirus and prevent further spread. Health policy makers suggested that further modification and updates to those apps could lead to producing effective future distant preventive intervention methods and successful implementation.

Despite the fact that these apps are valuable public-health tools, legal and ethical concerns have been raised about their use. The use of artificial intelligence in integrating different data sources during future outbreaks could be further explored.

Digital health technologies can be highly effective and preserve privacy at the same time, but in the case of contact tracing and exposure notification apps, there is a trade-off between increased privacy measures and the effectiveness of the app.

Dr: Shaimaa Ahmed Ali Shehata

Lecturer of Forensic Medicine and Clinical Toxicology Faculty of Medicine-Suez Canal University

COVID19 outbreak and lock down: Role of Telemedicine

services in Toxicology

Dr. Reem Khaled Abo Elmaaty

The COVID-19 pandemic started in December 2019 with the WHO declaring the outbreak as a public health emergency in January 2020. While the paediatric population has largely been protected from COVID-19-related illness, children and their caregivers have been significantly impacted by closure of schools, nurseries and enforcement of social distancing. Several studies observed both quantitative and qualitative changes in service calls to Poisoning Call Centres. It's become easier for people to access care thanks to the increased availability of telemedicine while the pandemic initially caused many clinics and community-based organizations to close their doors.

Dr.Reem Khaled Abo Elmaaty

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Validity of Vital Signs, Coma Scales and Modified APACHE Score in Prediction of Prognosis and Outcome of Acutely Poisoned Patients

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- ¹ Lecturer in Department of Forensic Medicine and Clinical Toxicology, Faculty of Medicine, Sohag University, Sohag, Egypt.
- ² Assistant professor in Department of Forensic Medicine and Clinical Toxicology, Faculty of Medicine, Sohag University, Sohag, Egypt.

Introduction: Poisoning is a public health problem and is one of the most common reasons for attendance at hospital emergency departments. Early diagnosis and treatment in emergency department and ICU are critical for the poisoned patient to reduce hospital morbidity and mortality. Aim Of the Work: Evaluation of the validity of coma scaling systems as GCS, Reed scale, poisoning severity score (PSS), modified APACHE score (MAS) and vital signs as predictors of clinical course and outcome of acutely poisoned patients. Patients &Methods: This retrospective study was carried out on 100 acutely intoxicated patients, who were selected from patients attended Sohag University Hospitals with age more than 18 years old who were in need to admit to intermediate or intensive care unit during the period from April 2018 to the end of February 2021. Results: this study revealed that 62% of the patients were in the age group 18-30 years old and 63% were females. The majority of them intoxicated by oral route 91% and most of them were suicidal 68%. For the outcome 75% of patients had been survived and 25% of patients died. PSS, Reed, MAS and GCS as coma scaling scores at admission showed significant difference between survivors and non-survivors of these patients. Systole and diastole as parameters of vital signs also showed significant

difference between survivors and non-survivors. While, pulse, temperature and respiratory rate were non-significant differ between survivors and non-survivors. Conclusion: the study concluded that PSS, Reed scale, MAS, GCS, diastole and systole respectively are valid prognostic tools for the outcome in acutely poisoned patients. Recommendation: Measuring PSS, Reed scale, MAS, GCS and vital signs at admission can be used as easy accurate parameters for triage of acutely poisoned patients.

Ameliorative effect of selenium and vitamin E on arsenic induced cardiac damage in adult male albino rat: Histological and biochemical study

Heba Hussein Rohym¹, Sarwat Lotfi Ahmed Abdel-Latif², Mostafa Yehia Abdelwahed³, Mohamed Hussein Elmahdi⁴, Ayman Mohamed Helal⁵

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Arsenic is present naturally in drinking water, soil and air. Exposure to it via drinking water is associated with cardiomyopathy and ischemic heart disease, hypertension, peripheral vascular disease. Selenium and vitamin E co-administration markedly improve the deleterious effect of arsenic on rat myocardium. Both agents are natural antioxidants used to decrease tissue inflammatory reaction exerted by free oxygen radicals. Each drug could be used alone in treatment of sodium arsenate induced myocardial damage. However, combined administration of both drugs has a more potent anti-oxidant and antiapoptotic effect compared to using each drug alone.

Aim of work: to elucidate the therapeutic role of selenium and vitamin E on sodium arsenate histological and biochemical alterations on rat myocardium.

Material and methods: Fifty adult male albino rats were divided into five groups, weighing 180-220 g; Group I (control): The rats were injected intraperitoneally once daily with 0.9% saline. Group II (Sodium arsenate administration for 2 weeks (acute toxicity). The rats were injected intraperitoneally with 7.2mg/kg/day of sodium arsenate for two weeks. Group III (Sodium arsenate administration for six weeks): The rats were injected intraperitoneally with 7.2mg /kg/day of sodium arsenate for six weeks. Group IV (Sodium arsenate for two weeks then selenium + vitamin E co-administration): The rats were injected intraperitoneally with 7.2 mg/kg/day of sodium arsenate for two weeks followed by co administration with 10 μ g /kg/day selenium, and 20 mg / kg / day vitamin E for another two weeks. Group V (Sodium arsenate for six weeks then selenium +vitamin E co-administration): The rats were injected intraperitoneally with 7.2mg/kg/day of sodium arsenate for six weeks followed by co administration with 10 µg/ kg/day selenium, and 20 mg / kg / day vitamin E for another two weeks. The heart was excised and processed for the following studies: Light microscopic study with hematoxylin and eosin (H & E) and Masson's trichrome stains, electron microscopic examination and biochemical estimation of antioxidant enzymes (Cardiac superoxide dismutase (SOD) activity, with absorbance read at 480 nm, was measured by adrenaline auto-oxidation inhibition assays. Catalase activity was assessed at 240nm by means of the H2O2 decrease rate. The Bradford Assay determined the concentration of proteins). Results: Group I (control): Light microscopic examination of rat heart specimens stained with hematoxylin and eosin stain showed normal architecture of myocardium, branching and anastomosing cardiac muscle fibers Electron microscopic examination of rat heart specimens

revealed euchromatic nucleus with prominent nucleoli, numerous cardiac muscle fibers with numerous mitochondria between the myofibrils, alternating dark bands and light bands with regular Z lines inside and sarcomere between 2 successive Z lines. Group II (Sodium arsenate for two weeks) Group III (Sodium arsenate for six weeks): Light microscopic examination of rat heart specimens showed dilated, congested and hypertrophied blood vessel with vacuolated wall and massive mononuclear cell infiltration around them. There were also widened interstitial spaces between the muscle fibers, increased number of fibroblasts. Electron microscopic examination of rat heart specimens of the same group revealed lost normal myocardial architecture with disrupted myofibrils, extensive sarcoplasmic rarefaction and extremely shrunken and karyolitic nuclei. Most of mitochondria appeared ballooned with lost cristae and few of them were apparently normal. Group IV (Sodium arsenate for two weeks and selenium +vitamin E coadministration and Group V (Sodium arsenate for six weeks and +vitamin E co-administration): Light selenium microscopic examination of rat heart specimens showed a relatively normal pattern of myocardial fibres and moderately widened interstitial spaces. Electron microscopic examination of rat heart specimens of the same group revealed relatively normal myocardial architecture. Statistical analysis of data: Heart collagen area % was statistically significantly higher in group II, III, IV and V compared to control Also, heart collagen area % was statistically significantly higher in group III but lower in group IV compared to group II with p< 0.0001 in both. The level of superoxide dismutase (SOD) was statistically significantly lower in group II, III, IV and V compared to control group. Catalase was statistically significantly lower in group II, III, IV and V compared to control group.

Conclusion: It could be concluded that selenium and vitamin E had a beneficial role in treatment of cardiomyopathy caused by sodium arsenate administration in adult male albino rats.



Experience of Dakahlia medical syndicate in legal aspect to support physicians in Dakahleia governor and during Covid 19 period

Dr Osama Ibrahim El-Shahat

One of the most important of these priorities was legal support for physicians in it's different stages and methods.

Forming a legal team that works on several ways, the most important of which is administrative and criminal support in different ways, which guarantees the rights of physician.

Holding a meeting with the Hospitals Security Department in the Dakahlia Security Directorate to arrange a mechanism that reduces attacks on physicians in hospitals and guarantees the rights of the physicians and the hospitals.

Arrangement with the Forensic Medicine & Clinical Toxicology Department of Mansoura College of Medicine - Mansoura University -Egypt to develop a mechanism for making preliminary reports and the reports of the tripartite committee to ensure the rights of doctors from a technical and legal point of view.

Support in the preparation the draft of law medical responsibility that protects the patient and the doctor, which has already been prepared and is expected to be discussed in the next cycle of the Egyptian Parliament by prof. Nesrien Omar with support of Prof . Emad Fekry and Dakahlia Medical Syndicate.

From the start of covid 19 in Egypt, Dakahlia medical syndicate started different actions to support physicians and different institutes in Dakahlia governor. The most important actions include:

- 1. Providing transportation for physicians during this period.
- 2. Providing some supplies for physicians and hospitals in Dakahlia Governorate from the Dakahlia and Egyptian medical syndicates.
- 3. Psychological and financial support for physicians during their infection by covid 19 especially in the start of the epidemic.
- 4. Psychological, financial and legal support for the physicians families who were died by covid 19.
- 5. Providing vaccinations to physicians, their families and medical students by cooperation with Dakahlia health directorate.

Dr Osama Ibrahim El-shahat

President of Dakahlia Medical Syndicate Board, Mansoura, Egypt. ISN Educational Ambassador

This is a list of Dakahlia redisent physians who died due to COVID 19



Recommendations

At the end of the conference the following points were recommended:

- 1. Recommend our colleagues either forensic pathologists or clinicians to apply all precautions during medical practice to avoid occupational related COVID infection.
- 2. Forensic and medical autopsy should be justified and strictly practiced in indicated cases.
- 3. Radical changes should be introduced into Forensic Autopsy including Pre-autopsy COVID screening using swaps, Minimally invasive autopsy and sampling, taking high precautions during and after autopsy, and lastly thinking seriously about initiating Virtopsy (virtual autopsy) using radiology techniques instead of conventional autopsy in highly infectious cadavers.
- 4. Apply all ethical rules when dealing with COVID 19 infected persons both live and dead.
- 5. Application of good collaborative work between all authorities during management of pandemics.
- 6. Safe women units in university hospitals are important place to refer victims of violence to find medical and psychological needs. Women complain office in the national council for Women offers legal and safety needs.
- 7. Do more research on the impact of COVID 19 on the type and management of toxicity cases.
- 8. Use polarity mapping as a tool to leverage the performance of our institution.
- 9. Use somewhat new tools as telemedicine in dealing with some cases of toxicity will be greatly helpful. Also do many studies on its value and proper application.

