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Introduction: The continuous development of the knowledge and skill of the emergency medical technicians (EMTs) in Ghana is important for the success of the pre-hospital system. Due to distance and time constraints, an online e-learning platform is a good way to educate the Emergency Medicine Technicians in Ghana.
Aim: The study looked at the feasibility of developing a distant learning module for the training and continuous medical education of EMTs.
Methods: EMTs in the Ashanti Region were randomly selected to be part of the study. They received online lectures and notes that were accessible by their mobile phones. They all received a test at the end of each model. The study measured their willingness to participate, average attendance for each model, and the scores for each model test. The study also measured the overall feasibility of the distant learning program.
Results: The study developed a training course comprised of 7 modules: trauma and surgical emergencies, obstetric emergencies, pediatric emergencies, disaster management, medical emergencies, basic ultrasound, and medical research. Tests and quizzes were electronically sent to EMTs over the course of the research period, with an average test score of 70.14% (low: 35%, high: 95%) for the cohort. Feedback from participants showed gains in knowledge and skill delivery. The average attendance for all model was 56.6% ranging from 47.37%-63.16% for the models. Challenges for attendance included internet access, heavy duties, and other personal reasons. The post-training interview showed 100% willingness to participate in future online programs with the most common reasons stated as low cost, ease of attendance for models, and reduced expense.
Discussion: The study concluded that online, distant learning models can be used in Ghana for training and continuous medical education for EMTs. It is an easy and cost-effective model compared to a face-to-face model.

Development of Trauma and Disaster Response in Togo, Africa

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Introduction: The project was provided under the auspice and support of the Israel Agency for International Development Cooperation (MASHAV) at the Ministry of Foreign Affairs (MFA). Togo, one of the smallest and least developed countries in West Africa, has a population of ~7.9 million. About 65% of its population lives in rural areas. Due to the lack of medical resources, Togo suffers from health problems including those related to trauma and mass events. In May 2017, a trauma and disaster team came to Togo to train the medical team in the new trauma unit, donated and built by the MFA. The unit was built in the Atakpame Regional Hospital (ARH), located 160km north of the capital, Lomé. ARH serves one million inhabitants, mostly from rural areas.
Methods: The training included lectures, simulations, drills, case studies, bedside teaching, and operation of medical technologies.
Results: Following the training, it was recommended to continue the program and to move forward with advanced training. Following the team's recommendations, MASHAV decided to expand the program and to provide a multilateral project to Togo and ten other West African countries within five months after the first training ended. Twenty participants (mostly senior doctors) were chosen from ten Western African countries and brought to Lomé. The participants joined a two-day Trauma and Disaster Preparedness seminar. Following the seminar, they were moved to Atakpame to join the local team and the facilitators, to visit the trauma unit, and to learn about it as a model for trauma care that can be modified to the capabilities of the local facility.
Discussion: Lessons learned and recommendations from those two projects were brought to the MFA that will try to develop more training and cooperation models to help and establish better trauma care and disaster response, supported by the Israeli team.

The Diagnostic Value of Ultrasonic Measurement of Inferior Vena Cava Diameter Respiratory Variability on Volume Response Evaluation of Geriatric Hip Fracture

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Aim: To evaluate the value of ultrasonic measurement of the respiratory variability of inferior vena cava (IVC) in the preoperative volume-response evaluation of elderly hip fracture patients.
Methods: Volume-loading tests were carried out in elderly patients with hip fractures requiring surgical treatment from August 2017 to February 2018. The maximum diameter (IVCe) and minimum diameter (IVCi) of the IVC were measured by ultrasound, and the variation of IVC (IVC-CI) was calculated before surgery. SV was monitored by a FloTrac/Vigileo system, and positive volume responsiveness was defined as ΔSV increasing by more than 15%. The sensitivity and specificity of IVC-CI to volume responsiveness evaluation was analyzed by ROC, and the correlation between IVC-CI and ΔSV was analyzed by Spearman correlation analysis.
Results: Ultrasound measurements and volume-loading tests were successfully performed in 39 of the 44 patients. Among them 21 cases were volume responsiveness positive (group R) and 18 cases were volume responsiveness negative (group N). Before the volume-loading test, IVCi in group R was significantly smaller than group N and IVC-CI was significantly larger than group N ($P<0.05$), while the difference between IVCe and group N was not statistically significant ($P>0.05$). After the volume-loading test, the differences between IVCe,

IVCi, IVC-CI, and group N were not statistically significant (P>0.05). Area under curve (AUC) of IVC-CI to assess volume responsiveness in geriatric hip fracture patients was 0.80±0.08 (0.65-0.95, P=0.001), with a 20.69% cut off value, 77.78% sensitivity, and 76.19% specificity. Through the Pearson correlation analysis, IVC-CI and Δ SV were positively correlated with the coefficient r = 0.367 (P<0.05).

Discussion: As a rapid and noninvasive monitoring method, ultrasonic measurement of the respiratory variability of inferior vena cava in assessing the volume responsiveness of geriatric hip fracture patients can provide guidance for perioperative fluid management.

Disaster and Mass Casualty Incident Responses by Doctor Car

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Introduction: Ambulances with physicians, known as Doctor Car, and Tokyo DMAT are the two prehospital care systems responsible for medical team dispatch in the Tokyo area. While there are 25 designated hospitals for DMAT, Doctor Car is only available at four hospitals. Our hospital incorporates both systems. While the prehospital care system must be utilized at the time of disaster, Doctor Car was dispatched 418 times in 2017, and the use of DMAT is less than ten times per year.

Aim: To review the past disaster responses of our hospital.

Methods: The study reviews three cases where our hospital responded to mass casualty incidents and disasters with either Doctor Car or DMAT. The first case was the treatment of crush syndrome caused by a collapsed parking slope. It took more than 24 hours for the rescue, in which the team treated patients during transport and at the hospital. The second case was our response to a mass stabbing incident committed at a facility for the disabled. In collaboration with the onsite rescue team, we conducted triage, hemostasis, transfusion, etc. The third case was caused by a fire in a building under construction. We provided treatments like triage and tracheal intubation on the spot.

Results: Because paramedics are allowed to conduct only a limited amount of treatments, dispatch of the medical team to the site is effective.

Discussion: For a medical team to be effective at the dispatched site, the team must be accustomed not only to the specific need of medical care during disasters but also prehospital medical care, which may include the abilities to ensure safety during transport and on-site and adapt to the prehospital environment. Doctor Car is a useful way to realize such abilities.

Disaster Education and Drills in Turkey: Do We Prepare Ourselves for Unexpected Disasters?

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Introduction: Turkey is vulnerable to many natural hazards, including earthquakes, landslides, floods, and terrorist attacks. The 7.1 magnitude Marmara Earthquake in 1999 resulted in over 18,000 deaths and estimated losses of over $28 billion. The country's largest city, Istanbul, is located on the North Anatolian Fault and thus highly prone to earthquakes. It is estimated more than half of the population in the country are potentially seismically vulnerable. This vulnerability makes us ready for disasters. Turkey has advanced disaster risk management through initiating reforms to better manage and reduce disaster risk and strengthening institutions.

Aim: To overcome institutional fragmentation, the government established the Disaster and Emergency Management Presidency (AFAD) in 2009.

Methods: Assess the 2015 government adopted Turkey National Disaster Response Plan to guide all disaster and emergency response.

Results: In the last six years, Turkey has become one of the world's largest refugee-hosting countries. As of 2018, approximately 3.5 million Syrians under temporary protection have largely been integrated into cities, towns, and villages that stressing the infrastructure and increasing potential risk exposure. This situation makes us recognize disaster protection preparedness. We have many public and civil institutions to prepare society for unexpected situations. The main institution is the Disaster and Emergency Management Presidency. AFAD has many projects for youth, school children and all age groups of society. The second organization is the Red Crescent organization of Turkey. The other organizations are mainly National Medical Rescue Teams (UMKE), some university disaster clubs, and civil institutions like Beşir NGOs.

Discussion: These institutions give main disaster confidence education, main CBRN education, main fire-fighting education, camping life educations, orienteering, mobile oven, and kitchen facilities and drills. We have to raise awareness of the community about preparedness to disasters. We have to share lessons with the whole population for reducing social and economic loss.

Disaster Medical Management of Pediatric and Perinatal Disaster Medical Liaison (PPDML) for Children and Pregnant Women in Osaka, Japan

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