The blasts resulted in 2,800 injuries and 12 fatalities, with nearly two-thirds of the injuries affecting the face, eyes, or hands.

The Lebanese American University Medical Center (LAUMC) treated 38 injured individuals, of whom 36 were admitted as inpatients, and 13 of them required care in the Intensive care unit. Surgical intervention was needed for 33 patients, with 32 suffering finger amputations, 31 presenting with eviscerated eyes, and 17 experiencing combined eye and hand injuries. This intentional mass casualty event overwhelmed healthcare infrastructure, as the unprecedented pattern and severity of injuries created an urgent demand for ophthalmological and orthopedic expertise.

The incident highlights the growing need to understand and prepare for the medical impacts of hybrid warfare, where non-traditional and unconventional tactics, such as technological sabotage, can generate large-scale civilian casualties. It also exposed critical gaps in disaster preparedness, underscoring the need for hospitals to reassess their mass casualty protocols, establish targeted training programs, and conduct regular preparedness drills.

Lessons from this event emphasize the importance of maintaining robust emergency response systems capable of addressing large-scale, unconventional threats and injury patterns.

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Wayanad Landslide - Lesson Learned

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Summary: On July 31, 2024, a deadly landslide in Wayanad, Kerala, India, occurred following continuous rainfall. Wayanad is situated in the Western Ghats, with lush green hills, dense forests, beautiful landscapes, and scenic waterfalls. Choormala and Mundakkai villages in the Wayanad District were hit by a landslide, which devastated the villages. Debris traveled 8 km along the local river, altering its course, causing a break in the bank, and destroying buildings and homes along the riverbanks and in villages.

The landslide caused 420 deaths, 397 injuries, and 118 people are still missing. The Wayanad Landslide was triggered by heavy rainfall and seismic activity. This sets the stage for disaster, as significant deforestation of tea plantations causes them to have a slope of 20 degrees. This increased the risk of flash floods during the rainy season. The leading causes of this are deforestation, seismic sensitivity, poor building construction, increasing population, urbanization, industrialization, increased traffic, and increased global warming. A massive landslide after torrential rain caused flash floods, a breach, and a massive landslide, bringing in mass devastation. Local villages, the Army, and the National Disaster Response Force all contributed to the rescue efforts and continue to assist in the rehabilitation.

The primary cause of the Wayanad Landslide was heavy rainfall, deforestation, and unstable soil. Major triggering factors include monocropping, illegal construction, global warming, climate change, increased greenhouse gases, and the use of fossil fuels. A decrease in global warming, deforestation, overconstruction, and help with research for climate change will help avoid this in the future. Active research is being done in India via the Kerala Disaster Management Authority, under the NDMA. Cochin University is also researching the causes of landslides and how to prevent them in the future.

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A Study on the Prediction of the Expiration Date of Antidotes for Poisoning Substances Used in Chemical Terrorism

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Introduction: Stockpiling antidotes and therapeutics is required in cases of CBRNE terrorism. However, there have been no studies on an appropriate stockpiling system and the cost of stockpiling antidotes. Therefore, the speakers focused on the expiration date of the antidote, estimated the expiration date from the results of the accelerated test of the antidote, and examined the optimization of the running stock.

Methods: The accelerated test is a method in which the rate of change is measured in a short period of time under high temperature conditions, and the stability under normal storage conditions is predicted based on the measurement results. In this study, we speculated on the stability of various antidotes if the drug changes only by chemical reactions and the temperature dependence of its rate follows the Arrhenius equation. A gas multiplier [R] = 8.3144621 J/(K·mol), temperature [T] = 273 K, and activation energy [E] = 92466.4 J/mol were used in the calculation.

Results: The subjects were administered atropine sulfate, pralidoxime iodide, diazepam, hydroxocobalamin, dimercaprol, penicillamine, Prussian blue, methylene blue, and fomepizole. Extrapolating the results of the accelerated tests of various antidotes to Arrhenius' equation, it was estimated that atropine sulfate had a shelf life of 3.1 years, pralidoxime iodide for 3 years, diazepam for 3.5 years, hydroxocobalamin for 3 years, dimercaprol for 12.6 years, penicillamine for 4.5 years, Prussian blue for 3 years, methylene blue for 3 years, and fomepizole for 5 years.

Conclusion: We focused on accelerated testing of various antidotes and predicted the long-term stability of the products. As a result, the titer was estimated to be maintained within three years. Based on these findings, the cost of stockpiling antidotes used in emergencies can be suppressed by adjusting the rolling stock period of various antidotes.

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