

Medical Consequences of Drone Attacks against Gaza: Amputation Injuries

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Below is the Summary of a detailed report entitled:

Traumatic Amputations Caused by Drone Attacks in the Local Population in Gaza: A Retrospective Cross-sectional Study

Background

Little data exist to describe the use and medical consequences of drone strikes on civilian populations in war and conflict zones. Gaza is a landstrip within the Palestinian territories and the home of 2 million people. The median age in Gaza is 17.2 years and almost half of the population is below the age of 14 years. We studied the prevalence and severity of extremity amputation injuries caused by drone strikes compared with those caused by other explosive weapons among patients with amputations attending the main physical prosthesis and rehabilitation centre in Gaza.

Traumatic amputations caused by drone attacks in the local population in Gaza: a retrospective cross-sectional study

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Methods

In this retrospective cross-sectional study, we recruited patients from the Artificial Limb and Polio Centre (ALPC) in Gaza city in the Gaza strip with conflict-related traumatic extremity amputations. Patients were eligible if they had one or more amputations sustained during a military incursion in Gaza during 2006–16 and had an available patient record. Each patient completed a self-reporting questionnaire of the time and mechanism of injury, subsequent surgeries, comorbidities, and their socioeconomic status, and we collected each patient's medical history, recorded the anatomical location of their amputation or amputations, and interviewed each patient to obtain a detailed description of the incursion or incursions that led to their amputation injury. We classified the severity of amputations and number of subsequent surgeries on ordinal scales and then we determined the associations between these outcomes and the mechanism of explosive weapon delivery (drone strike vs other) using ordinal logistical regression.

Findings

We collected data on 254 patients from APLC who had sustained an amputation injury. Of these patients, 234 (92%) were male and 43 (17%) were aged 18 years or younger at the time of injury. The age of participants was representative of the Gaza population, with a median age at inclusion was 28 years (IQR 23–33), and the median age at the time of injury was 23 years (IQR 20–29). 136 (54%) amputation injuries were caused by explosive weapons delivered by drone strikes, with explosives delivered by tanks being the next most common source of amputation injury (28 [11%]). Adjusted for age and sex, drone-delivered weapons caused significantly more severe injuries than explosives delivered by other mechanisms (eg, military jet airplanes, helicopters, tank shelling, and naval artillery; odds ratio [OR] 2.50, 95% CI 1.52–4.11; $p=0.0003$). Compared with all other types of weapons, the patients whose injuries were caused by drone strikes needed significantly more subsequent surgical operations to treat their amputation injuries than those injured by other weapons (OR 1.93, 1.19–3.14; $p=0.008$).

Interpretation

Drone strikes were the most commonly reported cause of amputation injury in our study population and were associated with more severe injuries and more additional surgeries than injuries caused by other explosive weapons. Limitations of our study include the self-reported nature of the mechanism of injury and number of subsequent surgeries and selection bias from not incorporating amputation injuries from individuals who died immediately or due to complications. The increasing use of drones needs to be addressed, rather than passively accepted, by the international community. This study fills a gap in our knowledge of the civilian consequences of modern warfare and we believe it is also relevant to the growing populations that are being exposed to drone warfare and for health-care personnel treating these people.

[Read full report here.](#)

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