The use of ultrasound by emergency medicine teams after earthquakes: a scoping review

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Introduction:
Earthquakes can have a significant impact on imaging modalities available in the surrounding hospitals. Ultrasound can offer several advantages in earthquake response scenarios but is underrepresented in the bibliometric analysis on imaging modalities after earthquake. This scoping review aims to analyse the gap in literature by examining the possible roles of ultrasound during different timeframes after an earhtquake.

Methods:
A scoping review was carried out using the PRISMA method searching Pubmed, Scopus and Web of Science. Grey literature was searched and snowballing was performed on the reference list. Results were extracted into 3 time cathegories for use during the first 72 hours after, during the first 6 weeks after, and follow up of patients during the years after the earthquake.

Results:
A total of 13034 studies were put into COVIDENCE ™, 69 references were found in Grey literature, 24 articles were witheld for extraction.

Limitations:
Articles were excluded based on language exclusion criteria so valuable information may be missing from the final selection.

Discussion:
During the first 72 hours after the earthquake ultrasound has been proven usefull for IO placement during rescuscitation, triaging patiens using Focussed Assessment with Sonography in Trauma, diagnosis of rhabdomyalisis and nerve injuries, evaluation of the need for renal replacement therapy, regional anesthesia through ultrasound guided nerve blocks and ultrasound guided procedures like evacuation of abcedations. During the first 6 weeks after the earthquake it can be primarily used in the hospital for regional anesthesia and procedures, and in remote shelters for Deep Venous Trombosis screening. In the years after the earhtquake the main use is follow up of stress cardiomyopathy and nerve injuries.

Conclusion:
Ultrasound has demonstrated diverse applications, ranging from triaging patients, detecting injuries, guiding procedures, and providing long-term follow-up. Its portability, real-time visualization, and rapid accessibility make it a valuable tool in resource-constrained and post-disaster settings.

Keywords:
Earthquake, ultrasound, disaster medicine