Artificial Intelligence in Promoting Patient Safety: A Systematic Review

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Citation:
Abedi Z, Mohammadi F. Artificial Intelligence in Promoting Patient Safety: A Systematic Review. *Iranian biomedical journal*. Supplementary (12-2024): 105.

ABSTRACT

Introduction: Artificial intelligence (AI) is considered a driving force and helper in the health systems of countries. Using its potential can provide a unique opportunity to improve patients' safety by identifying risks related to individuals' health. Applying AI in situations where the current strategies are inefficient, or the information analysis is complicated can take a valuable step toward improving patients' health. This systematic review aims to investigate the applications of AI in enhancing areas related to patient safety.

Search Strategy: In this systematic review, the published articles were between 2014 and 2024 with the keywords AI, patient safety, and medical errors in PubMed, Scopus, Google Scholar, CINAHL, Elsevier, Web of Science, and SID. Two researchers independently screened, extracted, and analyzed all identified studies based on inclusion and exclusion criteria. Overall, 347 articles were found, and after removing duplicate and unrelated articles, 18 were examined in full text.

Results: AI can potentially increase patient safety in various areas, including preventing medication errors, predicting and early detection of infections and pressure ulcers, helping in the correct diagnosis and treatment of patients, and prevention. It is beneficial to prevent unwanted complications from surgeries.

Conclusion and Discussion: Safely using AI requires accurate tests and the active participation of experts. This method can be used as a supplement and helper in patient care and treatment. While AI has the potential to improve patient safety, it also brings limitations and challenges that must be taken into account, and extensive research is necessary to identify these limitations and challenges.

Keywords: Artificial intelligence, Medical errors, Safety

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[DOI: 10.61186/ibj.25th-11th-IACRTIMSS]