THE ROLE OF ARTIFICIAL INTELLIGENCE IN TUBERCULOSIS MANAGEMENT: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background: A very dangerous but particularly feared infectious disease is tuberculosis (TB) for everyone of all ages worldwide. It is still a major public health threat worldwide. Alleviate this load, artificial intelligence (AI) can serve as a valuable tool in the healthcare system for diagnosis and treatment planning. Through its advanced capabilities, AI holds promise for improving patient outcomes and supporting targeted public health interventions to combat TB effectively. This meta-analysis examines the role of AI in TB management.

Material and Methods: Through a systematic search of the literature in electronic databases, including Embase, CENTRAL, and MEDLINE/PubMed, and Google Scholar until July 31, 2023, this meta-analysis explores the various applications of AI in TB diagnosis, prognosis, treatment optimization, and patient management. AI has shown promising potential in early TB diagnosis, drug discovery, predictive analytics, data management, and treatment optimization. The meta-analysis also assesses the effectiveness and limitations of AI-based tools in TB control.

Results: The findings highlight the potential of AI to enhance TB detection and patient care while addressing challenges and suggesting future research directions.

Conclusions: Further research and collaboration are crucial to fully harness AI’s potential and integrate it into global TB control efforts, potentially reducing the global burden of this devastating disease.