

Abstract

Applications of Artificial Intelligence in the Diagnosis of Acute Promyelocytic Leukemia: A Bibliographic Review [†]

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Introduction: The use of Artificial Intelligence (AI) in healthcare has transformed professional practice, offering efficient results, optimizing processes, and expediting diagnostic evaluations [1,2]. Early diagnosis of Acute Promyelocytic Leukemia (APL) and immediate therapeutic intervention are essential to provide a better prognosis for patients [3,4]. This study aims to identify how AI assists in the diagnostic process of APL and its impact on patient prognosis. **Methodology:** The bibliographic review was conducted through a critical analysis of articles published between 2011 and 2024, retrieved from PubMed, BVS, and SciELO using the descriptors artificial intelligence, acute promyelocytic leukemia, APL, and genetics. **Results:** The application of AI in the diagnosis of hematologic diseases has shown promise [5]. The use of methods such as machine learning (ML) and deep learning (DL) has been used to speed diagnosis, provide an accurate basis for clinical decisions, and aid in the classification of cancer types [6]. In all articles used for the review, the AI models performed well on the AUROC. In one of the reviewed studies, a deep learning model with convolutional layers achieved an AUROC of 0.822 in the discovery cohort and 0.739 in the validation cohort, demonstrating potential but also highlighting the need for further refinement [7]. **Conclusion:** AI has shown promise in diagnosing APL, assisting healthcare professionals and reducing the risk of errors. However, it faces challenges in expanding safe use and improving morphological and genetic analyses.



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