

Integrating AI into Breast Cancer Diagnosis: Aligning Perspectives for Effective Clinical Practice

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Abstract : Artificial intelligence (AI) can transform breast cancer diagnosis and therapy by providing sophisticated solutions for screening, imaging interpretation, histopathological analysis, and treatment planning. This literature review digs into the many uses of AI in breast cancer treatment, highlighting the need for collaboration between AI scientists and healthcare practitioners. It emphasizes advances in AI-driven breast imaging interpretation, such as computer-aided detection and diagnosis (CADe/CADx) systems and deep learning algorithms. These have shown significant potential for improving diagnostic accuracy and lowering radiologists' workloads. Furthermore, AI approaches such as deep learning have been used in histopathological research to accurately predict hormone receptor status and categorize tumor-associated stroma from regular H&E stains. These AI-powered approaches simplify diagnostic procedures while providing insights into tumor biology and prognosis. As AI becomes more embedded in breast cancer care, it is crucial to ensure its ethical, efficient, and patient-focused implementation to improve outcomes for breast cancer patients ultimately.

Keywords : breast cancer, artificial intelligence, cancer diagnosis, clinical practice

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