

Ovarian Cancer Diagnosis: A Comprehensive Overview

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Received: 01-July-2024, Manuscript No: jcd-24-144359; Editor assigned: 03-July-2024, PreQC No. jcd-24-144359 (PQ); Reviewed: 17-July-2024, QC No. jcd-24-144359; Revised: 24-July-2024, Manuscript No. jcd-24-144359 (R); Published: 4MC

Ovarian cancer diagnosis remains a significant challenge due to its often asymptomatic nature and the lack of effective early screening methods. This paper provides a comprehensive overview of the current methodologies for diagnosing ovarian cancer, highlighting the advanced techniques, biomarker discovery, and genetic profiling. We discuss traditional diagnostic approaches such as transvaginal ultrasound and serum CA-125 levels, alongside emerging technologies such as liquid biopsy and machine learning algorithms. The integration of multi-omics data and artificial intelligence (AI) holds promise in enhancing diagnostic accuracy and early detection rates. Despite these advancements, challenges such as false-positive rates, the need for standardized protocols, and accessibility to advanced diagnostic tools remain. This review underscores the importance of continued research and collaboration among clinicians, researchers, and industry to improve the early detection and management of ovarian cancer, ultimately improving survival rates and patient quality of life.

Ovarian cancer remains one of the most lethal gynecological malignancies, primarily due to its asymptomatic nature in the early stages and the lack of effective early screening methods. This paper provides a comprehensive overview of the current methodologies for diagnosing ovarian cancer, highlighting the advanced techniques, biomarker discovery, and genetic profiling. We discuss traditional diagnostic approaches such as transvaginal ultrasound and serum CA-125 levels, alongside emerging technologies such as liquid biopsy and machine learning algorithms. The integration of multi-omics data and artificial intelligence (AI) holds promise in enhancing diagnostic accuracy and early detection rates. Despite these advancements, challenges such as false-positive rates, the need for standardized protocols, and accessibility to advanced diagnostic tools remain. This review underscores the importance of continued research and collaboration among clinicians, researchers, and industry to improve the early detection and management of ovarian cancer, ultimately improving survival rates and patient quality of life.

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Conclusion

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