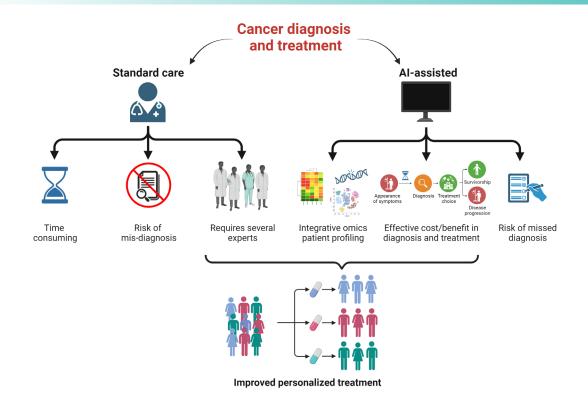


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Systems Biology in Cancer Diagnosis Integrating Omics Technologies and Artificial Intelligence to Support Physician Decision Making

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ADVANTAGES

Better data driven decision

Increased diagnosis efficiency

Improved preventive measures

Time saving for both doctors and patients

Improved therapeutic decisions

LIMITATIONS

Medical errors due to inadequate or missing data

> Relies entirely on training data

Lack of flexibility

Requires bioinformatic knowledge

Lack of regulation for legal accountability

Systems biology algorithms exploit Artificial Intelligence (AI) combined with omics technologies to perform a rapid and accurate analysis and integration of patient's big data and support the physician in making diagnosis and tailoring the most appropriate therapeutic intervention. Al-based precision medicine will be critical for cancer treatment in the future. However, AI is not free from possible diagnostic and prognostic errors in the interpretation of images or biochemical-clinical data. Experts are fundamental in data curation and data annotation to provide reliable datasets to be used for training AI classifier and predictors models. All is meant to complement the medical doctor facilitating his work, but it will not replace the medical doctor.