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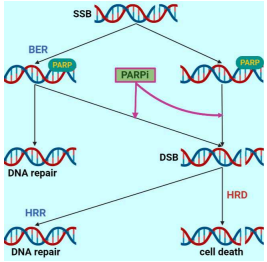
PARP inhibitors in colorectal malignancies: A 2023 update



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Keywords: PARP inhibitors; CRC; review; clinical trials; HRD; DDR; targeted; combinations; MSI-high; MSS, inhibitors in colorectal malignancy, parp inhibitors in crc, parp inhibitor, utilization of parp inhibitor, targeted approach through parp inhibitor, colorectal malignancy, colorectal carcinoma, synthetic lethality in malignancy, dna damage repair, alterations in the dna damage repair, chemotherapy, inhibitor, ribose polymerase, parp, medical oncology, malignancy, common malignancy, common malignancies in the western world, few relevant ongoing clinical trial, current clinical trial, immunotherapy, antiangiogenic

Abstract

Background: Colorectal carcinoma (CRC) is one of the most common malignancies in the Western world, and metastatic disease is associated with a dismal prognosis. Poly-ADp-ribose polymerase (PARP) inhibitors gain increasing attention in the field of medical oncology, as they lead to synthetic lethality in malignancies with preexisting alterations in the DNA damage repair (DDR) pathway. As those alterations are frequently seen in CRC, a targeted approach through PARP inhibitors is expected to benefit these patients, both alone and in combination with other agents like chemotherapy, immunotherapy, antiangiogenics and radiation.
Methods: In this review, we discuss the rationale for the use of PARP inhibitors in CRC, based on preclinical evidence and data arising from current clinical trials. Furthermore, the few relevant ongoing clinical trials are presented.
Results: Current evidence supports the utilization of PARP inhibitors in CRC subgroups, as monotherapy and in combination with other agents. Up to now, data is insufficient to support a formal indication, and further research is needed.
Conclusion: Efforts to precisely define the homologous repair deficiency (HRD) in CRC – and eventually the subgroup of patients that are expected to benefit the most – are also underway.

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