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Review of surgical techniques and multidisciplinary approaches in the treatment of liver and biliary cancer

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ABSTRACT

Liver and biliary cancer presents one of the greatest challenges in the oncological field due to its high mortality rate and the complexity of treatment. This paper reviews contemporary surgical techniques, including liver resections and minimally invasive procedures, and discusses the importance of an integrated multidisciplinary approach, involving surgeons, oncologists, radiologists, and palliative care teams. The combination of advanced surgical interventions and complementary therapies offers better prospects for survival and quality of life to patients, highlighting innovations and advances in the treatment of these aggressive cancers.

Keywords: Liver cancer, Biliary cancer, Surgical techniques, Multidisciplinary approach, Oncological treatment.

INTRODUCTION

Liver and biliary cancer is one of the most lethal and challenging neoplasms to be treated, due to its aggressiveness, late diagnosis, and anatomical complexity. Effective management of these tumors requires an integrated approach that combines sophisticated surgical interventions with complementary therapies and multidisciplinary support. The advancement of surgical techniques, including liver resections and minimally invasive ablations, combined with systemic treatments such as chemotherapy and immunotherapy, has brought new hope in the control of the disease.

However, the complexity of the cases, coupled with the need for individualized management, makes collaboration between surgeons, oncologists, radiologists, and palliative care teams essential to improve clinical outcomes and prolong patient survival.

This review explores innovations in surgical techniques and the importance of a multidisciplinary approach in the treatment of liver and biliary cancer, highlighting the prospects for personalized treatment.

METHODOLOGY

This literature review was conducted through a systematic search in the PubMed, Scopus, and Web of Science databases, covering publications between the years 2018 and 2023. A combination of descriptors such as "liver cancer", "biliary cancer", "surgical techniques", "multidisciplinary approach" and "oncological treatment" was used. Original articles, systematic reviews, clinical trials, and clinical guidelines that address the main innovations in surgical techniques and the role of multidisciplinary teams in the treatment of liver and biliary cancers were selected.

Inclusion criteria involved studies with relevant clinical samples, articles that presented detailed descriptions of surgical interventions and complementary therapies, as well as survival and quality of life outcomes of patients.

Publications that did not present consistent clinical data or that addressed other types of liver or biliary neoplasms unrelated to the techniques or approaches investigated were excluded.

Critical analysis of the studies was performed to assess the efficacy of the different techniques and the implications of integrating a multidisciplinary approach into treatment.

This approach ensured the identification of the most relevant advances in the field, allowing a broad and up-to-date view of best practices and innovations in the management of liver and biliary cancer.

RESULTS

The literature indicates that surgical resection is still considered the first-line treatment for liver and biliary cancer in selected patients, providing the best chances of cure. However, significant advances in minimally invasive techniques, such as radiofrequency ablation, transarterial chemoembolization (TACE), and radioembolization, have expanded therapeutic options for patients who are inoperable or at high surgical risk. These minimally invasive approaches are effective in tumor reduction, and local disease control, and in some cases allow conversion to surgical resection in later stages.

The adoption of a multidisciplinary approach, involving surgeons, oncologists, interventional radiologists, and palliative care specialists, has proven crucial for the personalization of treatment, optimizing clinical outcomes, and improving patients' quality of life.

Recent clinical trials also indicate that combining locoregional therapies with systemic treatments, such as immunotherapy and tyrosine kinase inhibitors, has the potential to increase overall survival, especially in advanced cases. The integration of new technologies, such as

robotic surgery and image-guided navigation, also contributes to surgical accuracy and the reduction of complications.

CONCLUSION

The management of liver and biliary cancer has evolved significantly, with advances in surgical techniques and the adoption of multidisciplinary approaches that involve specialists from different areas. While surgical resection remains the most effective treatment for operable cases, the development of minimally invasive procedures such as radiofrequency ablation and chemoembolization offers valuable options for patients who cannot undergo conventional surgery.

In addition, the integration of oncologists, radiologists, surgeons, and palliative care teams has shown a positive impact on patients' survival and quality of life. Continuing this cross-discipline collaboration and treatment innovation can further improve outcomes in the management of liver and biliary cancer, offering hope for a better prognosis in the future.

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