

Radionuclide Therapy of Hepatocellular Carcinoma

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Abstract

Introduction: Hepatocellular carcinoma (HCC) is a common malignancy worldwide. Surgical resection is generally accepted as the first choice treatment of HCC. Many non-surgical techniques have been developed and used for the treatment of inoperable HCC, with limited efficacy. This paper studies the role of radionuclide therapy in the treatment of inoperable HCC and in an adjuvant setting following curative resection of HCC. Materials and Methods: Relevant articles published between 1980 and 2002 were reviewed. Articles were identified through a Medline search using the key words hepatocellular carcinoma, iodine-131 (I-131), lipiodol, yttrium-90 (Y-90), rhenium-188 (Re-188), monoclonal antibodies and anti-ferritin. Results: The objective response rate of patients with HCC treated with intra-arterial I-131 lipiodol was 40% to 70% and the median survival was between 6 and 9 months. The efficacy of I-131 lipiodol was similar to transarterial chemo-embolisation, but appears to be better tolerated by patients. A median survival of 9.4 months to 54 weeks was achieved using intra-arterial Y-90 microspheres for the treatment of HCC. Tumours in 4 patients became resectable after treatment. Re-188 lipiodol is a relatively new radiopharmaceutical used for the treatment of HCC. The results of a pilot study have shown Re-188 lipiodol to be a safe and cost-effective radiopharmaceutical for the treatment of HCC via the intra-arterial route. Its efficacy should be subjected to further evaluation. The use of radio-labelled monoclonal antibodies, such as anticarcinoembryonic antigen and antiferritin, for the treatment of HCC has yielded encouraging results but these forms of treatment are largely experimental and limited to a few centres. Intra-arterial treatment using I-131 lipiodol in an adjuvant setting for patients following curative resection of HCC has resulted in improved disease-free and overall survival. The 3-year survival for the treatment and control groups were 86.4% and 46.3%, respectively. Conclusion: Radionuclide therapy presents another interesting option for the treatment of HCC amidst the wide array of non-surgical modalities available.

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Key words: Antiferritin, Hepatocellular carcinoma, Iodine-131, Lipiodol, Monoclonal antibodies, Rhenium-188, Yttrium-90

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