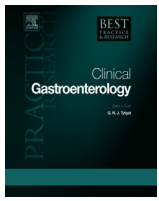
Best Practice & Research Clinical Gastroenterology 30 (2016) 593–602

Contents lists available at ScienceDirect

Best Practice & Research Clinical Gastroenterology



7

Radiation therapy in cholangiocellular carcinomas

Prof. Dr. med. Thomas B. Brunner, MD [a, b, c, *],
Prof. Dr. med. Thomas Seufferlein, MD [d, 1]

[a] Department of Radiation Oncology, University Medical Center Freiburg, Robert-Koch-Str. 3, Freiburg, Germany
[b] German Cancer Consortium (DKTK), Freiburg, Germany
[c] German Cancer Research Center (DKFZ), Heidelberg, Germany
[d] Department of Internal Medicine I, Ulm University, Albert-Einstein-Allee 23, D-89081, Ulm, Germany

Keywords:
Cholangiocarcinoma
Chemoradiothearpy
Chemotherapy
Adjuvant
Definitive

A B S T R A C T

Cholangiocarcinoma can arise in all parts of the biliary tract and this has implications for therapy. Surgery is the mainstay of therapy however local relapse is a major problem. Therefore, adjuvant treatment with chemoradiotherapy was tested in trials. The SWOG-S0809 trial regimen of chemoradiotherapy which was tested in extrahepatic cholangiocarcinoma and in gallbladder cancer can currently be regarded as highest level of evidence for this indication. In contrast to adjuvant therapy where only conventionally fractionated radiotherapy plays a role, stereotactic body radiotherapy (SBRT) today has become a powerful alternative to chemoradiotherapy for definitive treatment due to the ability to administer higher doses of radiotherapy to improve local control. Sequential combinations with chemotherapy are also frequently employed. Nevertheless, in general cholangiocarcinoma is an orphan disease and future clinical trials will have to improve the available level of evidence.

* Corresponding author. Department of Radiation Oncology, Freiburg University Medical Center, Robert-Koch-Str. 3, 79106 Freiburg im Breisgau, Germany. Fax: +49 (0) 761 270 94720.
E-mail addresses: thomas.brunner@uniklinik-freiburg.de (T.B. Brunner), Thomas.seufferlein@uniklinik-ulm.de (T. Seufferlein).
[1] Fax: +49 (0) 731 500 44502.

http://dx.doi.org/10.1016/j.bpg.2016.08.003
1521-6918/

Introduction

The group of hepatobiliary cancers consists of a number of different tumour types. These are hepatocellular cancer (HCC), gallbladder cancer, intrahepatic cholangiocarcinoma (IHCCC) and extrahepatic cholangiocarcinoma (EHCCC). The latter can be subdivided into hilar/proximal and distal EHCC as well as ampullary carcinoma. The discrimination of the respective tumour types is important because it impacts on factors such as prognosis due to different patterns of dissemination, likelihood of curative resection as well as early or late clinical presentation. In Europe cholangiocarcinoma is a rare cancer, HCC is more frequent especially due to hepatitis C, alcoholic and non-alcoholic steatohepatis (NASH). Worldwide, HCC is the fifth most common solid tumour (Parkin DM et al. Estimating the world cancer burden: Globocan 2000. *Int J Cancer.* 94 (2):153–156 2001). For all hepatobiliary cancers, resection is the only curative modality, but the majority of the patients do not present at a stage where resection is possible. For patients with unresectable tumours a range of therapeutic approaches is in use. Among those are systemic and regional chemotherapy, immunotherapy, chemoembolisation, and various ablative techniques. The treatment of hepatobiliary tumours is less standardized compared to other gastrointestinal tumours for a number of reasons which will become apparent in this review article that aims to summarise the current state of (chemo)radiotherapy. This article will also focus more on cholangiocarcinoma and less on HCC which is covered by the article by Mendez-Romero (Ref) appearing in the same issue of this journal. In general, a discrimination between macroscopic and microscopic disease (adjuvant or additive; post R0-or R1-resection) can be made with respect to the available radiotherapeutic techniques (Fig. 1).

Adjuvant therapy

The rationale for adjuvant therapy is given by the high number of relapses after resection only and by poor survival rates after five years (Fig. 2). Key prognostic factors that have been identified for adjuvant therapy of cholangiocarcinoma are the lymph node status (N-category) and the resection (R) margin status in addition to the anatomical locations. Chemotherapy, radiotherapy, and chemoradiotherapy have been employed for adjuvant treatment. But most of the experience that is available results from non-prospective series, a fact that renders interpretation of the value of adjuvant therapy difficult.

Chemotherapy

There are only few data for adjuvant chemotherapy in patients with biliary tract cancers following curative-intent surgery. In general, there is no clear evidence for an overall survival benefit of adjuvant

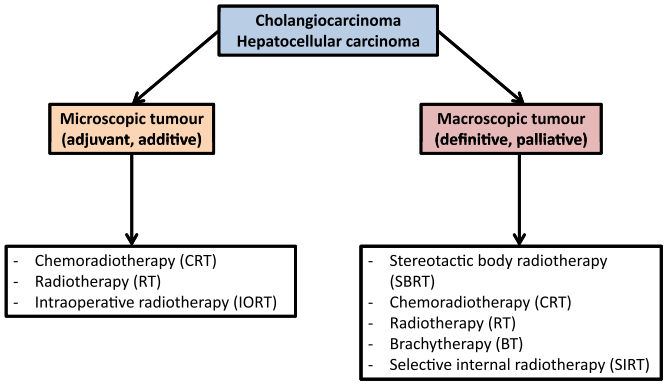


Fig. 1. Overview of radiotherapeutic options for the treatment of cholangiocarcinoma and hepatocellular carcinoma.