

Comparative Analysis of the Safety and Efficacy of Transcatheter Arterial Chemoembolization and Yttrium-90 Radioembolization in Patients with Unresectable Hepatocellular Carcinoma

Craig Lance, MD, Gordon McLennan, MD, Nancy Obuchowski, PhD, Grace Cheah, MSN, Abraham Levitin, MD, Mark Sands, MD, James Spain, MD, Shyam Srinivas, MD, PhD, Sankaran Shrikanthan, MD, Federico N. Aucejo, MD, Richard Kim, MD, and K. V. Narayanan Menon, MD

ABSTRACT

Purpose: To compare retrospectively the safety and efficacy of yttrium-90 (^{90}Y) radioembolization with the safety and efficacy of chemoembolization in patients with unresectable hepatocellular carcinoma (HCC).

Materials and Methods: Survival and complication rates were evaluated for patients with HCC who underwent chemoembolization or radioembolization at a single institution between August 2007 and April 2010. Complications were graded according to a standardized grading system for embolization procedures. Survival was determined via the Kaplan-Meier method, and multivariable analysis for factors affecting survival was performed.

Results: This study included 73 patients with HCC who underwent index embolization with radioembolization ($n = 38$; 52.1%) or chemoembolization ($n = 35$; 47.9%). The two patient populations were similar in terms of demographics, etiology of cirrhosis, functional status, tumor characteristics, Child-Pugh class, previous liver-directed therapy, and number of patients with bilirubin > 2.0 mg/dL. There was no significant difference in survival between the radioembolization (median 8.0 months) and chemoembolization (median 10.3 months) cohorts ($P = .33$). Postembolization syndrome was significantly more severe in patients who underwent chemoembolization, which led to increased total hospitalization rates in these patients. The rates of other complications and rehospitalization were similar between groups. Increased age, Child-Pugh class B, hepatitis seropositivity, bilobar tumor distribution, tumor vascular invasion, and presence of extrahepatic metastases were associated with reduced patient survival.

Conclusions: Patients treated with radioembolization did not show a survival advantage over patients treated with chemoembolization. However, patients who underwent chemoembolization had significantly higher rates of hospitalization as a result of postembolization syndrome.

ABBREVIATIONS

AFP = alpha-fetoprotein, CI = confidence interval, ECOG = Eastern Cooperative Oncology Group, HCC = hepatocellular carcinoma, ^{90}Y = yttrium-90

For patients with hepatocellular carcinoma (HCC), transcatheter arterial chemoembolization has emerged as a method of

slowing tumor growth or downstaging tumors before transplant (1–3). In patients with unresectable HCC, two key ran-

From the Case Western Reserve University School of Medicine (C.L.), Cleveland, Ohio; Division of Vascular and Interventional Radiology and Department of Quantitative Health Sciences (N.O.), Imaging Institute (G.M., G.C., A.L., M.S., J.S., S. Srinivas, S. Shrikanthan), and Department of Transplant Surgery (F.N.A.) and Gastroenterology (K.V.N.M.), Digestive Disease Institute, Cleveland Clinic Foundation, 9500 Euclid Avenue, ND 20, Cleveland, OH 44195; and Department of Gastrointestinal Oncology (R.K.), H. Lee Moffitt Cancer Center, Tampa, Florida. Received December 11, 2010; final revision received July 20, 2011; accepted August 1, 2011. Address correspondence to G.M.; E-mail: mclennng@ccf.org

Poster presentation at the SIR 2011 Annual Meeting.

G.M. is a paid consultant to Bard, Medtronic, Cook, and Siemens, and is on the advisory committee of B. Braun. None of the other authors have identified a conflict of interest.

© SIR, 2011

J Vasc Interv Radiol 2011; 22:1697–1705

DOI: 10.1016/j.jvir.2011.08.013

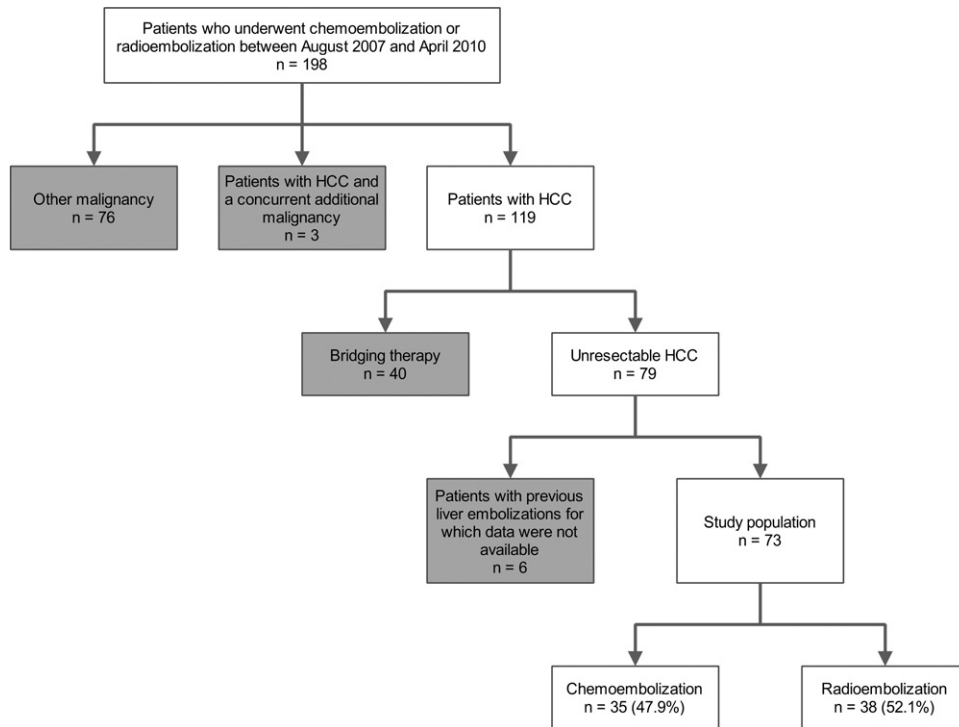


Figure 1. Flowchart depicting patient selection.

domized controlled trials and a subsequent meta-analysis showed a survival advantage for chemoembolization versus no treatment (4–6). These studies applied strict inclusion criteria; in clinical practice, locoregional therapies are often used in broader patient populations. Chemoembolization in these populations has been associated with a survival benefit in several studies (7–9), although the level of evidence in these trials was less rigorous.

Recent research has assessed catheter-directed internal hepatic irradiation with microspheres embedded with yttrium-90 (⁹⁰Y) and other radionucleotides as an alternative to chemoembolization. Two retrospective studies have shown similar effectiveness and toxicity between these treatment modalities (10,11), whereas a third, larger retrospective study revealed therapeutic equivalence with increased toxicity in the chemoembolization group compared with the radioembolization group (12). Another study comparing the efficacy of radioembolization and chemoembolization in tumor downstaging suggested that radioembolization provides a survival advantage (2). In this retrospective review, we assessed 73 patients with unresectable HCC who received treatment with either radioembolization with ⁹⁰Y microspheres or chemoembolization at a single institution. Our primary goal was to compare patient survival and complication rates in patients treated with these therapies.

MATERIALS AND METHODS

Patient Selection

We retrospectively assessed 197 patients who underwent chemoembolization or radioembolization of primary or secondary

liver malignancies between August 2007 and April 2010 at a single institution. We excluded 79 patients because they had not been diagnosed with HCC ($n = 76$) or because they had been diagnosed with HCC plus an additional concurrent malignancy ($n = 3$). An additional 40 patients who were candidates for further surgical therapy were excluded, as were 6 patients who had a history of previous chemoembolization or radioembolization procedures at outside institutions for which complete data were unavailable. Patients who had undergone previous surgical therapy with recurrence were included in the study, as were patients who underwent crossover treatment. There were 73 cases categorized by index embolization modality and included in the study (Fig 1). The clinical diagnosis of HCC was verified in these patients by biopsy, imaging results, and alpha-fetoprotein (AFP) levels using established guidelines (13–15).

Our study protocol was compliant with the Health Insurance Portability and Accountability Act and was approved by the institutional review board. The institutional review board also provided standing approval for the use of ⁹⁰Y glass microspheres under U.S. Food and Drug Administration humanitarian device exemption guidelines. Informed consent was obtained from all study patients after they received extensive information about potential treatment options.

Criteria for Treatment

All patients were evaluated and followed in an interdisciplinary liver cancer clinic. General indications for chemoembolization or radioembolization included bilirubin

Download English Version:

<https://daneshyari.com/en/article/4240005>

Download Persian Version:

<https://daneshyari.com/article/4240005>

[Daneshyari.com](https://daneshyari.com)