Transarterial Chemo-Embolization (TACE) and Radio-Embolization (TARE) in the combined modality treatment of advanced biliary tract cancer (aBTC): evaluation of feasibility and activity

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Introduction: Advanced biliary tract cancer (aBTC) is a disease that scarcely benefits of systemic therapies but is often limited to liver, suggesting that locoregional strategies might be applied to increase treatment options and improve outcome. Transarterial chemo-embolization (TACE) and radio-embolization (TARE) are thus sometimes offered to pts, despite the lack of experimental evidences on their efficacy. The aim of this retrospective analysis is to evaluate the safety and efficacy of TACE/TARE in aBTC.

Methods: We retrospectively collected data on patients with histologically-proven unresectable aBTC treated with TACE/TARE at our Institutions. TACE was performed with infusion of 2mL of microspheres loaded with chemotherapy drugs into the tumor-supplying vessel. TARE is an innovative locoregional treatment which involves the delivery of SIR-Spheres® (SIRT) that contain the β-emitter yttrium-90 into the arterial supply of the liver. Data on pts, treatments and tumor characteristics were collected and analyzed to investigate feasibility and activity on these locoregional therapies.

Results: From August 2011 to December 2014 82 TACE (median 2, range 1-7) and 13 TARE (median1, range 1-2) were performed in 49 pts with the following characteristics: M/F: 25/24, median age: 64 years (range 32-78), PS (ECOG) 0/1/2: 28/20/1, intrahepatic cholangiocarcinoma 42 (86%), extrahepatic cholangiocarcinoma 5 (10%) and gallbladder cancer 2 (4%), unilobar/bilobar: 19/20. Twenty-one out of 49 pts (43%) presented liver-predominantly disease with extrahepatic localizations: 12 confined to lymph nodes, 6 pts lung metastases, 2 lung + lymph nodes and 1 bone metastases. TACE used doxorubicin (n = 31), oxaliplatin (n = 5), and irinotecan (n = 1) as active drugs while TARE employed SIRT technology (n = 12). Twelve pts received TACE pts before starting any chemotherapy, 2 of them as neoadjuvant treatment to improve resectability and 8 as first line treatment; additional 17 pts received TACE/TARE as first line for the relapse after adjuvant gemcitabine-based chemotherapy (8 pts) or as consolidation strategy after a partial response or a stabilization to systemic chemotherapy for their aBTC (9 pts). Twenty-two pts received TACE/TARE in second or later lines. According to RECIST criteria, the liver tumor response was complete in 3 pts, partial response in 11 pts, stable disease in 28 and progression in 7. Twenty-one out of 28 RECIST stabilization showed an increase in the central necrosis of the lesions configuring a morphological response. Two patients became resectable and underwent liver resection after locoregional treatment. No hepatic progression was observed within 4 weeks after procedures. Treatment was well tolerated with no deaths or acute liver failure within 30-days post infusion. Grade 1-2 toxic effects occurred in 18% of pts, and included abdominal pain (n = 4), fever (n = 3), fatigue (n = 2); only two pts had a hepatic abscess as major complication. At a median follow-up from TACE/TARE of 10 months, 27 out of 49 pts are alive.

Conclusion: TACE and TARE seem to be safe and well-tolerated therapies in abTC, however their employment is widely inhomogeneous across treatment lines. These promising modality approaches and the better timing for their use need to be confirmed in larger and controlled studies.