# Y90 – its role in surgical patients

**Yun-Hwan KIM**

*Korea University, Korea*

**Lecture** : As we know, surgical resection is considered a curative treatment for hepatocellular carcinoma (HCC). However, compromised liver function and portal hypertension may preclude resection (1,2). Additionally, many patients are excluded for surgery because of metastatic disease, inadequate future liver remnant (FLR), tumor characteristics (size, number), and proximity to major vascular pedicles. Ideally, candidates for surgical resection present with solitary/unilobar HCC without vascular invasion, preserved hepatic function, and no evidence of portal hypertension. Yttrium-90 transarterial radioembolization (TARE) is an intra-arterial delivery of radioactive microspheres to treat hepatic cancers. In HCC, TARE has been found to effectively induce remnant liver hypertrophy, while simultaneously providing tumor control. Although still a relatively new concept compared with portal vein embolization (PVE), the standard technique for patients with small FLR, TARE has been found to achieve volumetric changes comparable to PVE, although with differing time kinetics. Treatment with TARE can be used in the preoperative setting to optimize patients with small FLR for surgical resection. Lewandowski et al.(3) reported a promising result of TARE as a downstaging modality compared to transarterial chemoembolization (TACE). Otto et al. (4,5) suggested that a sustained response to TACE was a better selection criterion than the initial assessment of tumor size or number in cases of deceased donor liver transplantation, emphasizing the clinical significance of candidate selection using a biological selection tool. From that perspective, TARE may provide additional benefit as a biologic selection tool because of its inherent characteristics, such as increased potency, longer duration of treatment effect, fewer treatment sessions, and low likelihood of confusion in image interpretation because Lipiodol is not used, and treatment repetition is not necessary. Salem et al. (6) suggested that TARE prolongs TTP when compared with TACE for early intermediate stage HCC, suggesting more complete treatment of targeted lesions and tumor control. Longer TTP did not translate to increased OS, suggesting local control (as an isolated variable) is insufficient for survival improvement in cirrhotic patients with competing risks of death. However, improved tumor control potentially could decrease the drop-out rate from transplant listing. We'd like to suggest that it might be successfully performed LT in patients after Y90-RE treatment both as bridging and downstaging for HCC and obtained a similar overall and free survival of LT for HCC within Milan criteria. Y90-TARE becomes a real option to provide curative therapy for patients who traditionally are not considered eligible for surgery.