



Commentary

Hepatic artery ligation and extrahepatic collaterals division (HALED), is it a page turn?



Hepato-Cellular Carcinoma (HCC) is still considered an incurable disease. At global scale, less than 50% of HCC tumors are resectable, as yet. Nonsurgical procedures are also not as prosperous as expected. Reports of selective hepatic artery embolization appeared in literature at mid 1970s. HCC thrives on highly oxygenated blood mainly from hepatic artery. Consequently, *Trans*-Arterial Chemo-Embolization (TACE) has become a principal therapy in large liver tumors for more than 35 years [1]. However, TACE is associated with higher recurrence and reduced overall survival compared to surgery [2]. Recently it was discovered that HCC receives collateral blood from adhesions to adjacent viscus, e.g. omentum, which may explain for the failure of TACE [3]. Hepatic Artery Ligation (HAL) was introduced as a more secure and radical approach to hinder arterial blood supply to liver but was soon eluded because of short lasting effect.

The innovative surgical approach proposed by Osama M.Elsanousi, Murtada A.Mohamed, Fatima H.Salim, Elsadig A.Adam in their study; Selective devascularization treatment for large hepatocellular carcinoma: Stage 2A IDEAL prospective case series, <https://doi.org/10.1016/j.ijso.2019.06.014>, aims at complete isolation of HCC from its arterial blood supply through Hepatic Artery Ligation and Extrahepatic Collaterals Division (HALED). This ingenious idea was put into trial under authoritative methodology according to IDEAL framework[4]. The outcomes are reported in line with PROCESS guidelines, which imply for their credibility [5].

HALED is a stage 2a IDEAL study which is in continuum with HAL, an IDEAL stage 1 study. The study took place at a university tertiary health care center. Most of the patients had unresectable tumors. No intraoperative mortality is reported however one (5%) 30-day postop mortality occurred. The operative data indicates a safe surgery and smooth postoperative course. Complication scores according to Clavien-Dindo are remarkable considering a major surgery in high risk patients with advanced or unresectable HCC. According to the modified response evaluation criteria in solid tumors (mRECIST version 1.1) via a liver CT scan made 4–6 weeks postoperatively, complete response was

achieved in 13 (65%) patients and partial response in three (15%) patients. Cumulative evidence as far suggests that HALED is safe and efficient. However, there are shortcomings. This is a case series with 20 patients and 30-day postop follow up. Obviously further upgrading studies should be performed leading ultimately to a randomized controlled trial; certainly after flawless maturation of the procedure and affirmation of its safety and proficiency.

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