



Is laparoscopic liver surgery really safe in elderly patients?

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Comment on: Sucandy I, Cheek S, Tsung A, *et al.* Minimally invasive liver resection for primary and metastatic liver tumors: influence of age on perioperative complications and mortality. *Surg Endosc* 2018;32:1885-91.

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We have read the article of Sucandy *et al.* entitled “Minimally invasive liver resection for primary and metastatic liver tumors: influence of age on perioperative complications and mortality” published in *Surgical Endoscopy* (2018) (1). We want to congratulate the authors for this interesting analysis about outcomes of elderly patients undergoing surgery as this represents a challenge we face in the everyday reality giving indications for a surgical intervention in a progressive aging population. We would also like to make some contributions focusing on some critical points. In the paper, the authors stated that minimally invasive liver resection (MILR) can be performed in patients >70 or 80 years old without increased of morbidity and mortality rate. In fact, in spite of greater preoperative American Society of Anesthesiologists (ASA) score and comorbidities, advanced age by itself has been demonstrated to be not a limiting factor for curative liver resection with minimally invasive approach. However, some issues remain unaddressed. First, it is well known that the experience of surgeons in MILS can influence the results (2). To overcome the difficulties associated with minimally invasive hepatic resections the training of surgeons and an appropriate learning curve is essential (3). Unfortunately, in the paper the baseline characteristics of the 3 analyzed groups did not include the evaluation of the surgeons learning curve. A consideration could be made in this regard between the intraoperative variables not related to demographic or clinicopathologic patients’ characteristic, to test if the surgeon experience can be confounding factor for the perioperative outcome. Second, as suggested by the authors themselves, a robust conclusion could be obtained

only by using a propensity score matched analysis as reported by others authors (4,5). In all studies published in literature, comparing young and older patients, the older group includes a super-selected population of patients. It is actually, paradoxically, that in the paper the group of age >80 (group C) developed only minor complications (Clavien-Dindo grade 1 and 2) compared to patients of age >70 (group A) and patients 70 through 79 years of age (group B). This appears to be curious but reflects the progressive better selection in increasing age of patients undergoing surgery. For this reason, it is questionable the statement that patients >80 years have the same or lower complication rate compared with other groups of patients. It should be interesting to analyze the results comparing the “best selected” patients in each of the 3 groups. In fact, in a real clinical scenario, the surgeon has no doubt to give indication for surgery to a young patient with a liver tumor, whereas has to choose only fit elderly patients for to recommend surgical liver resection rather than an alternative treatment or a conservative approach. Third and last point, in the paper surgical procedures were not classified according to the Brisbane 2000 nomenclature (6). This represent an important limit in the comparison of anatomical resection procedures as reported in literature. In fact, the most frequent “major hepatectomy” reported in the group of >80 years age old patients were a left lateral sectionectomy, corresponding in Brisbane nomenclature to a bi-segmentectomy or “minor hepatectomy”. As clear, this selection bias could explain the lower morbidity and mortality rate in the group of >80 years patients. In addition, the authors do not consider in the analysis the

anatomical location of the tumor. It is well known (7), that in case of tumor located in posterosuperior segments (I, VII, VIII and superior part of VI segment) the laparoscopic approach is not as feasible as for antero-inferior (V, VI) of peripheral left segments (II, III). In conclusion, despite the interesting data reported by Sucandy *et al.* (1), the feasibility and safety of MILS in elderly patients, remains still debated. The well-known advantages related to the laparoscopic approach could be limited by the frailty of elderly patients, especially when requiring major hepatectomy.

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