



Robotic versus laparoscopic distal pancreatectomy

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Robotic surgery represents an extraordinary evolution in the field of minimally invasive surgery. The application of this technique in pancreatic surgery has brought significant benefits. In fact, robotic surgery offers widely known technological advantages that make it possible to perform a potentially complex operation such as distal pancreatectomy in a simpler and even safer operation (1).

In the last 10 years robotic surgery has grown very fast as well as public studies on this topic, however there are still no randomized controlled trials (RCTs) that can clarify the role of robotic surgery compared to laparoscopic surgery.

With regard to the specific outcomes that have been discussed by the authors, we would like to express our comments.

The pancreatic fistula is the most feared and frequent complication in this type of surgery because it heavily affects the postoperative course, however in our meta-analysis we did not observe differences in terms of incidence of pancreatic fistula among the robotic (30.3%) and laparoscopic (33.5%) group. The underlying reason of this result is that the pancreatic fistula occurs regardless of the type of surgical approach that is used to close the pancreatic stump (stapled *vs.* sutured) (2). For this outcome, robotic surgery does not offer specific advantages in terms of reducing its frequency as far as demonstrated in literature up-to-now. However, the robotic platform allows a precise dissection of the pancreatic parenchyma and a selective ligation of the pancreatic duct, that demonstrated

excellent outcomes. In our study we observed a significantly lower rate to conversion in the robotic group. This result is a success of the robotic approach. In fact, robotic surgery allows to better manage bleeding compared to laparoscopic surgery or those cases in which the dissection of the pancreatic gland is particularly complex (3). In our experience robotic distal pancreatectomy is associated to low intraoperative estimated blood loss (mean 154.06 mL), a low incidence of grade B pancreatic fistula (7%) and short post-operative stay (mean 4.6 days).

We also want to emphasize how robotic surgery increases the rate of preservation of the spleen. Although this result could be interpreted as a bias of the study linked to the specific indication to the surgical intervention (neoplastic or benign pathology), our subgroup analysis demonstrates as the two groups were homogeneous regarding the indication to the surgical operation. Therefore, we may hypothesize that the reason for a higher rate of spleen preservation is the more efficient vascular control and gentle tissue handling of the robotic approach compared to laparoscopy.

Although our meta-analysis has not demonstrated for other surgical and oncological outcomes statistically significant differences between the robotic and laparoscopic group, we have documented how robotic surgery reduces the length of hospital stay in a statistically significant manner, without any difference in terms of duration of operative time.

The cost of robotic surgery is always considered to be very high and is at the centre of the worries and discussion of the health policies. Looking only at the material costs of the robotic intervention these will always be very expensive and disadvantageous to robotics, unless we

change the way we think about the benefits achieved through robotic surgery: reduced on the length of hospital and greater patient safety.

Many authors think that the lack of RCT studies represents a limited scientific evidence that is difficult to overcome through the production of observations studies. However, it has been shown that the speed of application of new technologies in medicine often does not allow to propose methodologically perfect studies such as RCT (4).

In conclusion, this meta-analysis suggests that the procedure is safe and comparable in terms of surgical results to LDP. However, if the RDP has a higher cost compared to LDP, it increases the rate of spleen preservation, reduces the risk of conversion to open surgery and is associated with shorter length of hospital stay.

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