Meet the Professor

Professor Réal Lapointe: the impact of portal embolization on postoperative morbidity and mortality after liver resection

Submitted Jul 01, 2013. Accepted for publication Jul 06, 2013.
doi: 10.3978/j.issn.2304-3881.2013.08.07
View this article at: http://www.thehbsn.org/article/view/2476/4548

Professor Réal Lapointe (Figure 1) is the Director of General Surgery Division in University of Montréal, and Chief of Hepatobiliary and Pancreatic (HBP) Surgery and Liver Transplantation Department in Centre Hospitalier de l'Université de Montréal (CHUM). As holder of the Roger Des Groseillers Chair in HBP Surgical Oncology, his clinical and translational research focuses on evaluating new drugs in HBP oncology and different surgical approaches for colorectal liver metastases, and on developing new biological markers from human tissue bank from patients with primary and secondary liver cancer (e.g., hepatic colorectal metastases), pancreatic and bile duct cancer.

Figure 1 Professor Réal Lapointe.

HBSN: Can you give us a brief summary of the impact of portal vein embolization (PVE) on the outcomes following liver resection?

Prof. Lapointe: Patients undergoing major liver resections (≥3 segments) are at increased risk for postoperative liver failure and mortality, related to the insufficient volume of remnant functional liver to support postoperative liver function. In an attempt to decrease the risk of postoperative liver dysfunction and mortality, PVE is now used to lead to atrophy of the ipsilateral lobe to be resected and hypertrophy in the future liver remnant. The indications of PVE depend on preoperative assessment of future liver volume remaining based on manual or automated evaluation of liver contour on contrast CT scan. There is no consensus as to how this volume should be calculated and the cut-off value in literature. However, the usually accepted threshold value varies between 25-30% for normal liver to 40% in presence of underlying hepatocellular disease, such as metabolic syndrome, prolonged preoperative chemotherapy, diabetes, and cirrhosis. So, PVE should be performed in an attempt to increase FLR volume when calculation of FLR is below these values. Even though the PVE increases the rate of resectability in carefully selected patients and reduces the risk for postoperative liver insufficiency and death from liver failure, 20% to 40% of patients remain unsuitable for liver resection after PVE because of intra or extrahepatic tumor progression or absence of sufficient hypertrophy of the FLR.

HBSN: What advances of PVE have helped reduce post-operative morbidity and mortality after liver resection?

Prof. Lapointe: To go through major liver resections, the future liver remnant volume must be sufficient to decrease the risk of postoperative complications and mortality. The major breakthrough of PVE is to lower these postoperative risks of morbidity and mortality, in order to have patients going through surgery with uneventful recovery.

HBSN: What developments in this field can be expected in the near future?

Prof. Lapointe: In most parts of North America, there are more and more obese patients and diabetic patients.

We know in this kind of patients, there is a higher risk of fatty liver. So for these patients with fatty liver, if we go for a major liver resection, the risk of post-operative complications is very high. In order to prevent or decrease these complications, we will use PVE more often in obese patients and diabetic patients. So, I expect that PVE will be used more and more in the future.

HBSN: In spite of the recurrence of colorectal liver metastasis, how does perioperative chemotherapy benefit these patients?

Prof. Lapointe: Nowadays, chemotherapy is mostly given before and after liver resection for colorectal liver metastases, what we call perioperative chemotherapy or "sandwich" chemotherapy. Preoperative chemotherapy allows for evaluation of response to the regimen facilitating postoperative chemotherapy planning, for easier resection by decreasing the size of metastases and quantity of liver to be removed and for increased rate of negative surgical margins. The main purpose of postoperative chemotherapy is to decrease the risk for recurrence. However, even after adjuvant chemotherapy, most patients will eventually have recurrence. A close follow-up is very important since more than 30-50% of these patients can be offered a second liver resection with a 5-year survival rate identical to those resected only once.

HBSN: You and your research team have been working on a clinical data bank directly linked to a human tissue bank from patients with primary and secondary liver cancer (e.g., hepatic colorectal metastases), pancreatic and bile duct cancer. What is the basic picture of your data bank? What is the significance of that?

Prof. Lapointe: Since 2011, we have been working on a web-based database especially custom-designed by the computer technicians of the Canadian Tumour Repository Network (CTRNet) for our needs, which links the archived biological sample data of tissue banking to patient's own pathological and clinical data. This fall, a new clinical researcher will join our research team and will do translational research focusing on advanced GI cancer recognition by the immune system. He is planning to use the tissue repository and clinical database as a research platform to link critical clinical questions to the underlying tumor immunobiology. We foresee this approach will lead to significant findings and contribute to more personalized treatment decision-making and ultimately improvement in survival outcomes. Overall, the HBP surgery and liver transplantation Department in CHUM is taking the leadership in Québec and Canada to improve research on and treatment of patients with the most aggressive digestive tract cancers by setting up an ambitious core project of tissue repository and clinical information database. Moreover, scientific collaborations with other Canadian and foreign research teams working on immunotherapy are planned.

HBSN: Thank you very much!

Cite this article as: Xu EX. Professor Réal Lapointe: the impact of portal embolization on postoperative morbidity and mortality after liver resection. Hepatobiliary Surg Nutr 2014;3(2):104-105. doi: 10.3978/j.issn.2304-3881.2013.08.07

Acknowledgements

Disclosure: The author declares no conflict of interest.

(Science Editor: Eunice X. Xu, HBSN, editor@thehbsn.org)

