Digestive Surgery at the Cirrhotic Patient*

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In chronic liver disease, the incidence of cirrhosis is increasing. About 1 million deaths from cirrhosis are reported annually by WHO, occupying the 11th position in the hierarchy of pathologies that cause death (1). The prevalence of cirrhosis is often underestimated based on the fact that one third of the patients are asymptomatic (2).

Regardless of whether it is elective or urgent extra-hepatic surgery, operative interventions in this range of patients are burdened by an increased risk of perioperative morbidity and mortality (3,4). This reality requires the evaluation of the benefit-risk balance for each patient with the surgical firm indication. A journal of the medical literature, presented over the period 1995-2018 (PubMed), noted that the most frequent extra-hepatic interventions in the cirrhotic patient were addressed to the cholecyst and CBD (23%), parietal defects (hernias, events) in 17 %, gastric pathology (19%) and rectum-colon (19%).

Liver cirrhosis is frequently associated with abnormalities of coagulation mechanisms: thrombopenia and platelet dysfunctions, decreased coagulation factors but also proteins involved in fibrinolysis.

Cardio-circulatory changes are all the more important as the cirrhotic pathology is more evolved, being expressed by hyperkinetic syndrome and systemic vasodilation with hyper-flow, tachycardia and low peripheral resistance (5). The «trigger» element of these anomalies is the portal hypertension and the porto-systemic shunts that involve vasodilating mediators but also the compensatory activation of the renin-angiotensin system (6).

The perioperative anaesthetic strategy in the patients is integrated in a multidisciplinary effort of specific management.

Pharmacokinetic and pharmacodynamic changes (distribution volume increase, clearance reduction, carrier proteins reduction in the context of hypoalbuminemia) require that the anaesthetic substances be administered in a titrated manner (7).

In practice, high postoperative morbidity (30-60%) is related not only to the operative site infection (explained by immunosuppression) and / or to the local bleeding but also to the presence of systemic complications that may ultimately induce refractory ascites, hepatorenal insufficiency or hepatic encephalopathy. About 16-20% of patients are classified ASA 4 and 5 with a reintervention rate of about 25% (8). In studies with high statistical effect, mortality at 30 days (relative to the control population) is increased in cirrhotic patients 2-10 times (9,10). In Cho's study (11) the most common causes of mortality were: liver failure (42%) and infections (34%).

Scores assessing underlying hepatopathy are strongly correlated with postoperative morbidity and mortality, with Child-Pugh classes B and C as well as MELD > 15 expressing a poor prognosis. The main prognostic factors associated with the postoperative mortality are: emergency surgery, preoperative presence of ascites, renal failure, hyponatremia, blood loss and transfusions during the peroperative period (8,10,11).

Discussing the technical features, the coelioscopic approach is feasible in the cirrhotic patient but its benefit has not been statistically demonstrated outside the cholecystectomy. The data from the literature are insufficient for the factual recommendation for the systematic use of laparoscopy in other pathologies on cirrhotic field (12). Abdominal drainage is in most recent studies not recommended. If used, the balance of losses and the detection of the ascites fluid infection become mandatory. Regarding the type of parietal closure, there are no factual recommendations in the literature. In the AFC report of 1995, J. Belghiti reports an extravasation of

ascites in 2% of the operated patients. Recently, Sabbagh and Regimbeau recommended a multi-plane parietal suture and a skin strain, a technique that could reduce the risk of ascites extravasation (13).

Perioperative optimization of nutritional status and hemodynamics, correlated with multidisciplinary analysis (anaesthesiologist, hepatologist, surgeon), represents the essential coordinates of therapeutic management and improvement of morbidity-mortality in this category of patients.

Conflict of Interest

No conflict of interest.

References

1. Asrani SK, Devabhavi H, Eaton J, Kamath PS. Burden of liver diseases in the world. *J Hepatol* 2019;70(1):151-171. Epub 2018 Sep 26.
2. Lim YS, Kim WR. The global impact of hepatic fibrosis and end-stage liver disease. *Clin Liver Dis*. 2008;12(4):733-46, vii.
3. Paugam-Burtz C. Cirrhosis and surgical risk. *Presse Med*. 2011; 40(1 Pt 1):17-23. Epub 2010 Oct 25. French
4. de Goede B, Klitsie PJ, Lange JF, Metselaar HJ, Kazemier G. Morbidity and mortality related to non-hepatic surgery in patients with liver cirrhosis: a systematic review. *Best Pract Res Clin Gastroenterol*. 2012;26(1):47-59.
5. Møller S, Henriksen JH. Cardiovascular complications of cirrhosis. *Gut*. 2008;57(2):268-78.
6. Ginès P, Schrier RW. Renal failure in cirrhosis. *N Engl J Med*. 2009;361(13):1279-90.
7. O'Leary JG, Yachinski PS, Friedman LS. Surgery in the patients with liver disease. *Clin Liver Dis*. 2009;13(2):211-31.
8. Neeff HP, Streule GC, Drognitz O, Tittelbach-Helmrich D, Spangenberg HC, Hopt UT, et al. Early mortality and long-term survival after abdominal surgery in patients with liver cirrhosis. *Surgery*. 2014;155(4):623-32. Epub 2013 Nov 22.
9. Lin CS, Lin SY, Chang CC, Wang HH, Liao CC, Chen TL. Postoperative adverse outcomes after non-hepatic surgery in patients with liver cirrhosis. *Br J Surg*. 2013;100(13):1784-90.
10. Csikesz NG, Nguyen LN, Tseng JF, Shah SA. Nationwide volume and mortality after elective surgery in cirrhotic patients. *J Am Coll Surg*. 2009;208(1):96-103. Epub 2008 Oct 31.
11. Cho HC, Jung HY, Sinn DH, Choi MS, Koh KC, Paik SW, et al. Mortality after surgery in patients with liver cirrhosis: comparison of Child-Turcotte-Pugh, MELD and MELDNa score. *Eur J Gastroenterol Hepatol*. 2011;23(1):51-9.
12. Kim DH, Kim SH, Kim KS, Lee WJ, Kim NK, Noh SH, et al. Predictors of mortality in cirrhotic patients undergoing extrahepatic surgery: comparison of Child-Turcotte-Pugh and model for end-stage liver disease-based indices. *ANZ J Surg*. 2014;84(11):832-6. Epub 2013 May 6.