Operation Volume in Pancreatic Cancer Surgery: How Long Will We Keep Looking the Other Way?

Centralização em Cirurgia Oncológica Pancreática: Até Quando Vamos Olhar para o Outro Lado?

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Palavras-chave: Complicações Pós-Operatórias/ecnonomia; Falha no Resgate em Cuidados de Saúde; Hospitais com Alto Volume de Atendimentos; Hospitais com Baixo Volume de Atendimentos; Neoplasias Pancreáticas/cirurgia

Dear Editor,

Pancreatic surgery was 'proscribed' in the literature due to an unacceptably high mortality rate until the 1990s, when high-volume centers started publishing their experience with acceptable mortality rates. These high-volume centers established the current benchmark of pancreatoduodenectomy's mortality rate of around 3%.[1] The inverse association between operation volume in pancreatic surgery and mortality is now well established.[2] Several reviews and meta-analyses confirm a positive effect of high-volume on both short- and long-term pancreatic surgery outcomes.[3] There is no consensus on the cut-off, but a minimum of 20 - 40 pancreatic surgeries per year is cited in many articles.[4]

The centralization of pancreatic surgery has been established in several countries, namely the Netherlands and Denmark. In the Netherlands, a country with a population of around 18 million, there are 16 centers performing pancreatic surgery, where a minimum of 20 pancreatic head resections per year are mandatory. In Denmark, a country with almost 6 million people, there are only four centers performing pancreatic surgery, with the smallest center performing more than 30 procedures per year.

In Portugal, despite the implementation of 'referral centers' for hepato-pancreato-biliary cancers in 2016, there are no rules dictating who can perform the complex and potentially hazardous procedures that are necessary for the treatment of these types of cancers. We continue to see Portuguese hospitals performing pancreatic surgeries with a volume that is much lower than the already stated 'magic number' of 20 Whipple procedures per year. Because the outcomes of these centers are not scrutinized and made public, we do not know the mortality and morbidity rates that are associated with pancreatic surgery in these centers.

However, a systematic review including 44 studies on the influence of centralization of pancreatic surgery showed a 90-day mortality rate of 9% - 16% in low-volume centers.[4] This more than three-fold mortality in low-volume centers compared to high-volume centers is not only explained by the technical difficulty of a pancreatoduodenectomy but, especially, by the multi-disciplinary management of postoperative complications. This failure to rescue[5] is the result of the relative inexperience in dealing with the postoperative complications, which are very particular to this procedure, but also of the necessary resources that are not available in every hospital, such as 24/7 interventional radiology.

Will we keep looking the other way, or will we have the political courage to centralize pancreatic surgery? First and foremost, for our patients, who deserve the best treatment available for pancreatic diseases, but also because of the huge costs associated with the higher postoperative complications rate in low-volume centers, one of the great contributors to health-care costs.[5]

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HGC, JSDM, MBM, GG: Critical review of the manuscript.

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COMPETING INTERESTS

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JSDM has grants or contracts from the Dutch Cancer Foundation and ZonMW Foundation (Dutch Government); is a member of the Dutch Fluorescence Guided Surgery Group; is the Chair of Pancreatic Anatomy and Advanced Pancreatic Cancer Course at the European Society of Surgical Oncology.

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REFERENCES

1. Sánchez-Velázquez P, Muller X, Malleo G, Park JS, Hwang HK, Napoli N, et al. Benchmarks in pancreatic surgery: a novel tool for unbiased outcome comparisons. Ann Surg. 2019;270:211-8.
2. Hata T, Motoi F, Ishida M, Naitoh T, Katayose Y, Egawa S, et al. Effect of hospital volume on surgical outcomes after pancreaticoduodenectomy: a systematic review and meta-analysis. Ann Surg. 2016;263:664-72.
3. Mehta HB, Parmar AD, Adhikari D, Tamirisa NP, Dimou S, Jupiter D, et al. Relative impact of surgeon and hospital volume on operative mortality and complications following pancreatic resection in Medicare patients. J Surg Res. 2016;204:326-34.
4. Ahola R, Sand J, Laukkarinen J. Centralization of pancreatic surgery improves results: review. Scand J Surg. 2020;109:4-10.
5. Portuondo JI, Shah SR, Singh H, Massarweh NN. Failure to rescue as a surgical quality indicator: current concepts and future directions for improving surgical outcomes. Anesthesiology. 2019;131:426-37.

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