EDITORIAL

Better Visualisation and Proper Preoperative Planning for Surgeons: New Option for Patients

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ABSTRACT
The year 2017 has passed without any major breakthroughs in the field of pancreatic cancer. Despite all attempts to improve the management and long-term outcomes of pancreatic adenocarcinoma, pancreatic cancer still remains a lethal malignancy, and is pushing forward all attempts to diagnose the disease as early as possible. The pancreatic protocol computed tomographic scan with arterial and venous phase enhancement is an accepted diagnostic standard and should be followed in any surgical unit which deals with pancreatic surgery, complemented by magnetic resonance imaging, positron emission tomography or EUS when indicated. Surgical care has probably arrived at its limits, and other treatment modalities will aid in reaching truly curative long-term outcomes. While the recent development of new agents or combinations may add the hope of improving the disease outcome, a deeper exploration of the molecular, genetic nature and types of immune mechanisms is the direction to follow to reach clinically relevant long-term results.
gemcitabine, while the median survival is 8.6–11 months associated with different degrees of toxicity [7, 8, 9]. The strong agreement is in favour of the use of adjuvant chemotherapy after R0 resection. A pathological diagnosis is considered mandatory before the start of a multimodal treatment, and restaging after preoperative treatment should include CT and/or MRI [6]. Unfortunately, despite advanced surgical techniques and curative-intent surgery including perioperative care, the majority of patients die after surgery due to local recurrence or distant metastatic disease. Unsurprisingly, surgeries performed at high-volume centres have better R0 resection rates and better overall survival rates because of a more appropriate patient selection for curative procedures. Surgical skills and volume are important for an early recovery and a decreasing mortality and morbidity after the procedure. Currently, the state-of-the-art pancreaticoduodenal resection involves the so-called mesopancreatic [10] resection margin, including a total mesopancreas excision with even circumferential lymphadenectomy of the SMA to achieve an adequate retropancreatic margin clearance and minimize the likelihood of an R1 resection and local recurrence.

Mesopancreas dissection with central vascular ligation and the superior mesenteric artery (SMA)-first approach represent the cornerstone of the current principles for radical resection of pancreatic head cancer [11]. The abovementioned criteria may be fulfilled by experienced surgeons in a setting with established teamwork principles and a critical assessment of the treatment results. That means certain limits for patients living in areas without highly specialized centres, and for professional surgeons who face with insufficient volumes to reach the very top standard of this specific care. This type of surgical care has probably arrived at its limits, and other treatment modalities will aid in reaching truly curative long-term outcomes. Several directions have been explored to recognize the important aspects of the aggressive nature of pancreatic cancer. Pancreatic adenocarcinomas are characterized by genetic heterogeneity which has patient-specific individual patterns and considerable genetic instability. Unknown remains the question whether a number of genetic aberrations occur gradually and simultaneously to carcinogenesis or pancreatic tissue accumulates a number of critical genetic mutations early and the available tissue molecular profiling is very limited [7]. The new and promising direction is the exploration of pancreatic stem cells. According to the current evidence the well-known, inherent chemoresistant nature and metastatic capacity of pancreatic adenocarcinoma might be linked to a subpopulation of highly plastic “stem”-like cells within the tumour with unique properties for a continuous self-renewal and resistance to chemotherapeutic elimination [12]. One of the major challenges for developing molecularly-targeted therapies is the presence of a few prevalent genetic mutations – KRAS (activating), CDKN2A (encoding p16), TP53 and SMAD4 (inactivating) – without the possibility to correct them with the available pharmacologic treatments and other immune mechanisms [13]. The fundamental aspect of oncology, the induction of the immune response of the host, has been recently studied in a randomised phase II study. The so-called Wilms’ tumor gene 1 vaccine has been combined with gemcitabine and compared to gemcitabine alone [14]. All of the new developments need a more active involvement of clinically-based studies for the exploration of the potential of a maintenance therapy or neoadjuvant treatment in resectable disease or unresectable disease, driven by basic research and translational research.

CONCLUSION

The management of pancreatic cancer has approached its limits considering the potential to treat this aggressive disease surgically. An improved selection of patients based on advanced preoperative visualization and preoperative planning is the only way for the surgeon to go forward; however, its is insufficient for achieving a long-term curative goal. While the recent development of new agents or combinations may add the hope of improving the disease outcome, a deeper exploration of the molecular, genetic nature and types of immune mechanisms is the direction to follow to reach clinically relevant long-term results.

Conflict of Interest

The authors declare no conflict of interest.

References


