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The Challenges of a Multidisciplinary Oncology Team

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Abstract

The decisions made by the Multidisciplinary Oncologic Team (MOT) should consider multiple aspects such as individual patients' health status, availability of local facilities, and expertise. During a traditional MOT staff round for solid-organ cancers, one of the most important decisions to be made is whether or not to operate (in combination with adjuvant therapies), and, if surgery is not an option, to direct the patient to alternative therapies, palliative treatment or follow-up. The choice to operate on a cancer patient leads to the possibility of the patients' experiencing surgery-related complications. On the other hand, an inappropriate "wait and see" policy could lead to tumor progression toward an inoperable stage or result in the need for much more mutilating surgical procedures. The proposed diagram may assist medical professionals in making appropriate treatment decisions; in the case of suboptimal therapeutic cascade, referral to specialized centres should be suggested.

The importance of a multidisciplinary approach to cancer treatment is one of the cornerstones of modern medicine [1]. Moreover, despite the progressive and important innovations that have been made with regard to radio chemotherapies, surgery remains one of the crucial aspects of solid-organ-tumor management.

Today, a Multidisciplinary Oncologic Team (MOT) should include both a dedicated oncologist and a surgeon with great experience in the specific field (i..g., hepatic, pancreatic, upper gastrointestinal, colorectal, urological, and female cancers). Many other medical and paramedical professionals are needed, depending upon the organ targeted and individual situations (i.g., radiologists, endocrinologists for thyroid cancer, anesthesiologists for pain relief or palliative care, nurses for home-based assistance and administration of medications) to provide the best chance of a cure [1].

However, during a traditional MOT staff round for solid-organ cancers, one of the most important decisions to be made is whether or not to operate (in combination with adjuvant therapies), and, if surgery is not an option, to direct the patient to alternative therapies or palliative treatment. In instances of cases with doubtful outcomes, the MOT should also make decisions regarding the monitoring of a suspected lesion, as well as the necessity for additional imaging, further invasive investigations, or exploratory surgical intervention (Figure 1). A standardized written or a computer-generated form should be printed and signed by all the participants.

Furthermore, the choice to operate on a cancer patient, with either a curative intent or to limit the progression of a pre-neoplastic lesion, leads to the possibility of the patients' experiencing surgery-related complications [2]. Perioperative complications can result from a wide and heterogeneous spectrum of diseases, which can range from death to minor wound infections. However, several of these complications can be life-threatening or at least cause prolonged hospital stays, thus reducing the amount of healthy time between relapses or delaying the beginning of adjuvant therapies, and, ultimately, reducing chances of survival.

On the other hand, an inappropriate "wait and see" policy could lead to tumor progression toward an inoperable stage or result in the need for much more mutilating surgical procedures. Interestingly, there are many obvious relevant problems among the different

types of operations, including the different biologic behavior of each neoplasm and its natural history.

Lastly, the patients' age and their concomitant comorbidities, influencing the life's expectancy and the risks of surgery, should be taken into account, to best assess the pros and cons of any decision [2].

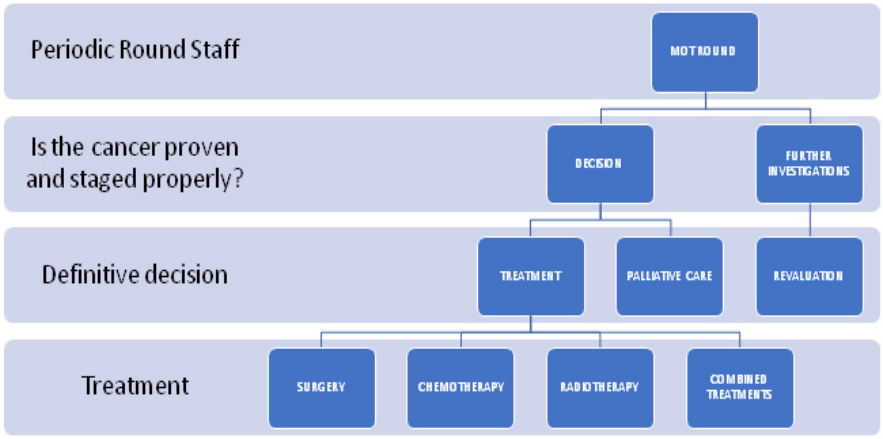

Fig 1. *Multidisciplinary Oncologic Team (MOT) staff round: the algorithm of decisions Patients' age and concomitant illnesses should also be considered.*

To best comprehend and identify those challenging issues, balancing the pros and cons of a MOT decision, a simple plot has been devised in which the reported 30-days perioperative mortality was matched with the 5-year survival rate of a major solid-organ cancer, according to extensive published data [3,4]. The so-called "MOT Challenge" diagram can also be divided into four quadrants: upper left (A: low perioperative mortality/high survivorship), upper right (B: high perioperative mortality/high survivorship), lower right (C: high perioperative mortality/low survivorship), and lower left (D: low perioperative mortality/low survivorship), presented in a clockwise direction (Figure 2).

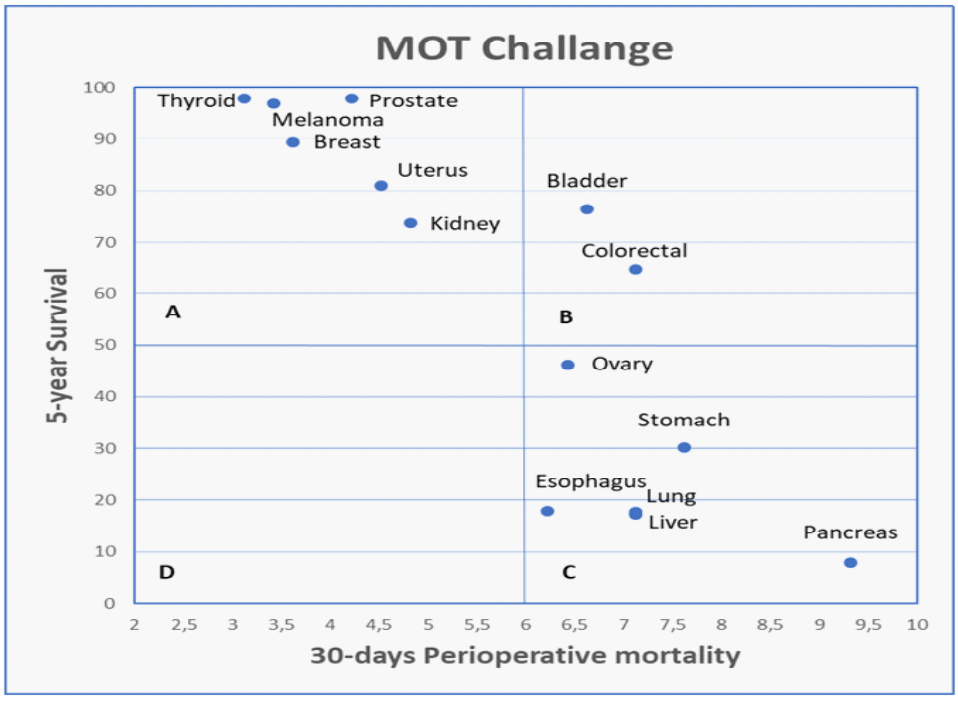

Fig 2. *The "MOT Challenge". Perioperative 30-days mortality is plotted against the overall 5-year survival of major solid organ tumours. The maximum challenge in Multidisciplinary Oncology Team (MOT) is the quadrant "C".*

This simple diagram has the advantage of being intuitive to use and easy to memorize; however, it is based on several assumptions. Firstly, the source data are not univocal and could differ worldwide, for example, reflecting the results of a determinate health system with free access and a medium/high level of resources [5]. Secondly, the parameter of 30-day mortality may not take into account the risks of surgery by avoiding many issues, such as in-hospital stays and mortality rates, and the development of mutilating complications (i.e. unexpected stoma formation, persistent cardiopulmonary failure, sexual impairment, incontinence, or voice modification). Thirdly, determination of surgical procedures could be very different with respect to the stage of disease in each organ (i.e. simple skin excision for an initial melanoma or breast cancer versus wide removal of tissue with plastic reconstruction and lymphadenectomy). Lastly, all perioperative mortalities reported do not consider the excellence achieved in subspecialized centers, where complex surgeries should be performed [6].

The hardest implications for the MOT Challenge diagram fall in quadrant "C," where the majority of lethal solid-organ cancers can be found. For example, pancreatic cancer presents a potentially dramatic impact on every MOT decision. An incidental lesion of the pancreatic head may be suspected to be an intraductal papillary mucinous neoplasm (IPNM) with "worrisome features," as observed with imaging, in a healthy, fit-for-surgery patient. Moreover, it may be considered advisable for a formal pancreaticoduodenectomy (PD) to be performed. This decision involves a balance between a reported perioperative mortality of more than 9% and the chance of survival of more than 80% in the absence of an invasive component [7]. However, this survival rate is expected to fall to less than one-half in the case of a "wait and see" approach, if an invasive pancreatic cancer (rather than IPMN) is subsequently diagnosed. It may appear to be obvious that the high mortality rate after PD should consider the whole spectrum of these surgical patients, even though the mortality rate is expected to be lower in the subgroup of otherwise healthy people with incidental diagnoses of IPMN. However, the possibility of perioperative, non-life-threatening complications (i.e., postoperative fistula formation) still need to be considered, as well as prolonged in-hospital stays [8].

In contrast, a differentiated thyroid cancer (the most frequent type) definitively falls in quadrant "A." Moreover, total thyroidectomy carries a negligible risk for perioperative mortality, even in frail patients, with the most impacting complication being rare and often reversible laryngeal nerve injury. Conversely, a borderline/indeterminate thyroid nodule carries a low risk of being malignant, and a "malignant" nodule presents the patient with more than a fair chance of 5-year survival, whether a prompt operation or delayed treatment is scheduled [9].

Interestingly, most colorectal cancers fall in quadrant "B," with a 5-year survival rate of more than 50% and surgical options that carry a medium risk of mortality and resulting in complications, depending on the particular stages and location (i.e., colon or rectum) of the tumors. However, the chance of the patients' experiencing an anastomotic leak, receiving creation of a temporary or definitive stoma, developing a permanent bowel disfunction, or sexual impairment should also be considered [10].

MOT decisions rarely involve the "empty" quadrant, "D," in which highly lethal solid-organ cancers are managed by low-risk surgery. For example, even a small skin, but deeply invasive, melanoma could be excised with sentinel node mapping, regional lymphadenectomy, or wide surgical excision and plastic reconstruction[11].

In conclusion, the importance of a well-structured MOT program based on the expertise of professionals and published, accepted international guidelines is mandatory in every hospital involved in cancer therapy. However, all the decisions should be tailored for multiple aspects such as individual patients' health status, local facilities, and available expertise. I suggest that the MOT Challenge diagram may greatly assist medical professionals in making appropriate treatment decisions. Moreover, in the case of suboptimal steps being taken within the therapeutic cascade, referral to specialized centers should be suggested.

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