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Review Article

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Sparsity, Discrepancies and Inconclusiveness in our Understanding of Tumor Board Functionality

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Introduction

The literature on tumor boards is growing but limited and laden in discrepancy, rendering our knowledge of the functionality of multidisciplinary tumor boards (MDTs) in cancer management shaky at best [1]. For instance, while team-based functionality and decision-making are well established in the surgical literature, there are few similar studies related to MDTs. In addition, the extant literature offers inconsistent results on the effect of MDTs on patient outcomes. In some studies, the MDT approach shows a positive correlation with cancer-care management, in the sense that it improves diagnosis and patient survival [2-4]. Other researchers, however, have found no difference in diagnosis or patient survival pre- and post-MDT review [5,6]. Given the variability in research results on TBs, researchers have focused more closely on identifying and understanding MDTs through an examination of quality and efficacy of clinical decisions [7-10]. The mixed results, however, provide no clear conclusion on the functionality and value of these groups.

Mixed Perceptions of the Multidisciplinary Care Model and MDTs

Positive perception

Studies have found that, in general, medical professions view the multidisciplinary care model positively [11]. For example, Soukup et al., 2018, reported that MDT members gave TBs high ratings, suggesting that they provide an open culture for discussion, a forum for optimal management plans with coordinated treatment, and a reduction in the risk of medical error. Additionally, a 2017 Cancer Research UK report on MDTs conveyed responses from team members who held the multidisciplinary care model in high regard, citing its effectiveness, structure, and decision-making process. Respondents felt that MDTs facilitated patient care and saved time in other areas of their practice (Cancer Research UK, 2017). Other earlier studies have mirrored these results. One Canadian study of MDTs reported that over 90% of respondents believed that the teams facilitated multidisciplinary care by providing improved coordination and communication with colleagues and a better, more thorough consideration of all treatment options, improving patient outcomes [12]. Many additional studies have proposed that MDTs are generally perceived favorably with supposedly improved patient outcomes. Overall, however, the evidence is neither conclusive nor based on strong research or methodological designs [13,14].

Negative perception

Not all studies investigating the effect of MDT care on cancer outcomes have been positive. For the critics who scrutinize TBs, a key problem noted is that TBs are time and resource intensive, yet they are not thorough enough for optimal care, especially in today's health care environment, which demands more patients be reviewed through multidisciplinary evaluation [15]. In these settings, fast-paced MDT meetings often gloss over pertinent patient information without enough time for the necessary in-depth discussion [15]. Furthermore, MDT members have little time to prepare the patient case for the meeting [16]. Finally, not only do many patients need review during MDT meetings, but they are often discussed multiple times and re-evaluated at various points along the clinical care pathway.

Other practical barriers to MDTs have been found to be related to interpersonal issues, such as the lack of responsibility for patient care (i.e., no one clinician takes responsibility of the patient in the meeting) and overlooking or ignoring patient interests [15]. Additionally, clinicians may not give full consideration to physical and emotional circumstances and often fall short of recommended guidelines or standards [15]. It has been found that MDTs vary widely in how they adhere to guidelines or standards related to team composition and expertise as well as treatment and referral protocols [17,18]. TBs sometimes make consensus recommendations leading to treatment decisions without adhering to established clinical guidelines or protocols or without input from all TB members [19,20]. After a TB makes decisions, it may or may not follow up as there is typically no feedback loop following TB review [20]. The limited attention to these important aspects of MDT functioning is problematic. Thus, TBs exhibit many clinical and social practices that encumber optimal functionality, fueling the debate about their effectiveness.

Consensus on MDT Effectiveness and Value

Due to the growing use of MDTs, scholars have taken great interest in understanding TB value, effectiveness and functionality. In

2010, the National Cancer Action Team in England aimed to identify the characteristics of an effective MDT through a national survey of more than 2,000 MDT members [21]. This study outlined 86 characteristics deemed effective for TB functionality of the team. Results showed that 90% of respondents agreed on the valuable characteristics of member expertise and specialization, attendance, leadership, teamwork, training, appropriate meeting room, technology and equipment, regular meetings, pre-and post-meeting preparation and coordination of services for patient, patient-centered evidence-based clinical decision-making, organizational support in resources and clinical government in agreed MDT policies and protocols. Respondents also agreed that an effective MDT improved clinical decision-making, quality of care, and treatment, and helped coordinate patient care [1]. Taylor et al. (2012) also used the NCAT responses to test and confirm effective characteristics by incorporating them in an assessment of more complex and rare cancer cases. Following up on the NCAT study, Lamb et al. (2013) conducted a study that showed 116 out of 136 respondents agreed on what represented effective MDTs. The results of these studies provide strong indication that there is consensus on the characteristics that are deemed essential for effective MDTs.

MDT Ineffectiveness

While there is a consensus around the characteristics of effective MDTs, results have not been consistently favorable nor have best practices been determined or put to use. TBs still do not always deliver their expected output, sometimes resulting in unfavorable patient consequences [22,23]. For instance, Denton et al. (2016) showed that due to lack of proper attendance, multidisciplinary input, and quality information, many patients' cases were postponed, delaying treatment by a week while the cancer advanced. Thus, it can be surmised that there are practical barriers to TBs, a problem that has prompted some scholars to challenge the idea of TBs as a valuable approach to cancer treatment [24]. It has been suggested that TBs do not always function optimally and may not be worth the investment, but more research is needed to understand why [23,25-27].

Taylor et al. (2012, p. 1) stated, "MDTs are a very expensive resource and we know little about how well they individually function." How MDTs function is not well understood [8]. Although some researchers have identified that a problem exists in TB functionality, to date, they have yet to confidently confirm the causal factors. Some studies have suggested that barriers to effective TB functionality are due to organizational structure, such as lack of leadership, undefined and unacknowledged roles, communication difficulties, or inadequate coordination of care and lack of standardization [7,13,28]. There are also logistical difficulties such as scheduling conflicts, poor attendance, unavailability of quality information, and poor record keeping [28]. Failure of institutional support is another contributing factor, such as limited funding, no financial compensation for attendees, lack of dedicated time or venue space, and no administrative support or acknowledgment of increased workload by hospital management [11,12]. Others have found that processes are inadequate and that decisions do not consider patient interests; follow-ups may not even take place [20,22]. For example, studies have found that TBs do not prioritize the presentation of patient cases during TB meetings based on complexity [11,29]. They approach decision-making similarly for every patient case rather than allocating the appropriate time and resources to each case based on complexity and urgency. Additionally, there is typically no feedback loop in the process following TB patient review [20].

As a result of perceived inadequacies, TBs have faced great criticism, particularly of their value and functionality [24]. However, although these critical studies are appropriate, they lack the complete story and miss another element in group decision- making, that of social hierarchy, interdisciplinary collaboration, and the impact of these structures on patient decision-making under different levels of patient situational complexity. These factors should be considered in addition to the factors identified in prior studies, as they provide a holistic view of internal and external factors which impact TBs.

In existing studies, many authors have proposed how to make teams function better, such as positive leadership and dynamics, adequate administrative support and time, complete and good-quality information, changes in structure and process, training, and sufficient funding [18-20,23,27]. While I agree with the earlier findings, these recommendations appear to ignore or gloss over deeper structural and procedural issues that impede group decision- making processes, including status hierarchies and patient case complexity, and how these aspects of uncertainty affect TB functionality. My argument supports the assertion by Taplin et al., (2015, p. 245) that "understanding and testing how various inputs, processes, and contextual factors influence MDT outcomes is critical for understanding how to best structure and invest in creating effective team-based approaches to care [30]."

Presently, the understanding of TB functioning is incomplete; recent studies have failed to acknowledge and explain deeper issues related to how TB culture and structure may operate in ways that undermine their goal of effective multidisciplinary decision-making, which may have negative implications for group processes and teamwork as well as for patients. They do not address how teams should manage disagreements and facilitate interdisciplinary participation in the group decision-making process or how interpersonal factors such as steep hierarchies and interdisciplinary trust between members affect MDT performance in patient cases of various levels of complexity. These crucial issues directly influence the decision-making process, as the ambiguity—how to make sense of a situation and act appropriately within a group structure—is overlooked. In addition, they may shed light on why current literature on TB effectiveness is inconsistent, inconclusive, and somewhat contradictory. Understanding these critical issues could reduce performance variability and perhaps enhance tumor board functionality.

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