Somatic BRCA2 mutation in Pancreatic Cancer: A Case Report and Literature Review

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Background and Objectives: Pancreatic ductal adenocarcinoma (PDAC) remains one of the most lethal malignancies, with limited treatment options for patients presenting with unresectable disease. Identification of BRCA1/2 mutations has important therapeutic implications, as homologous recombination-deficient tumors may demonstrate increased sensitivity to platinum-based chemotherapy and PARP inhibition. We present a case of unresectable PDAC with a somatic BRCA2 mutation despite negative germline testing and review the literature regarding the clinical significance of tumor genomic profiling.

Methods: A retrospective review of the patient's clinical presentation, diagnostic investigations, treatment course, and outcome was performed. A narrative review of the published literature was undertaken to examine the prevalence and therapeutic implications of somatic versus germline BRCA mutations in PDAC and the role of tumor next-generation sequencing (NGS).

Results: A 60-year-old woman with previous ovarian and breast cancers presented with abdominal pain, weight loss, and anorexia. Imaging demonstrated a locally advanced pancreatic body mass with major vascular encasement, rendering the tumor unresectable. Endoscopic ultrasound-guided biopsy confirmed pancreatic adenocarcinoma. Given her oncologic history, platinum-based FOLFIRINOX chemotherapy was initiated. Tumor NGS identified a pathogenic somatic BRCA2 mutation, while germline testing for BRCA1, BRCA2, and PALB2 was negative. Subsequent NGS of archived breast tumor tissue did not identify BRCA1 or BRCA2 mutations.The patient completed 17 cycles of FOLFIRINOX followed by 9 cycles of cisplatin and gemcitabine after persistent unresectability. Although surgical resection was not achieved, disease remained stable for an extended period, and the patient survived 23 months following diagnosis.

Discussion: This case highlights the clinical importance of distinguishing somatic from germline BRCA mutations in PDAC and demonstrates how tumor genomic profiling can identify actionable alterations despite negative germline testing. BRCA1/2 alterations occur in approximately 5–7% of PDACs, although somatic mutations are considerably less common than germline variants. Emerging evidence suggests that both somatic and germline BRCA mutations may predict responsiveness to platinum-based chemotherapy and PARP inhibitors, and have demonstrated benefit in selected patients with BRCA-mutated disease.

Conclusions: Tumor NGS can identify clinically actionable BRCA mutations that may influence treatment selection despite negative germline testing. This case supports the growing role of comprehensive molecular profiling in unresectable PDAC and underscores the importance of integrating tumor sequencing into contemporary management strategies.

ECMO Retrieval Program: Barriers and Facilitators to Implementation

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Background and Objectives: Acute respiratory failure (ARF) is among the most common causes of admission and death in intensive care unit (ICU), and patients often require invasive mechanical ventilation. While some patients improve with mechanical ventilation alone, others, especially those suffering the most severe forms, including acute respiratory distress syndrome (ARDS), can continue to worsen despite standard medical therapy and mechanical ventilation. For those patients who worsen, or in those patients requiring ventilation parameters that are in themselves harmful, extracorporeal membrane oxygenation (ECMO) offers an alternative approach to managing refractory respiratory failure by providing a means of continuously oxygenating blood and scrubbing it of CO_2 outside of the body. ECMO is complex and costly, and must be conducted in centers with appropriate experience, frequency of exposure, necessary supplies and education to ensure it is done safely and effectively. ECMO retrieval programs enable patients who are too unstable for conventional transport to be cannulated and stabilized at the referring center, before being transported on ECMO to a tertiary care facility with ECMO expertise for ongoing management. The objective of this research study was to identify the barriers and facilitators to implementing an ECMO retrieval program in Nova Scotia.

Methods: This is a qualitative focus group study. Participants were recruited via email and word of mouth. Five focus groups were conducted, each including different professions involved or to be involved in ECMO retrieval (n=2 cannulators, n=2 referral site health care professionals, n=3 transport team, n=5 ECMO center intensivists, and n=4 pediatric ECMO retrieval team members). Focus group data were recorded and professionally transcribed. Data collection and analysis were guided by the Theoretical Domains Framework (TDF). Inductive analysis was used to explore key themes.

Results: We identified four major themes: implementation logistics, confidence and emotional preparedness, personnel, and educational needs. Key areas of focus for participants were space availability within the transport vehicle, professional confidence, debriefing needs, equipment availability, and need to gain experience.

Discussion: Some participants expressed that they preferred straight forward procedural based debriefing, whereas others preferred debriefs focused on the emotional toll of ECMO retrieval. Many participants had existing knowledge/experience with ECMO retrieval or ECMO in general through previous training, however participants still expressed the need for further knowledge and skill development through exposure, presentations, and simulations. Some of the biggest concerns brought about by participants were logistical issues such as space constraints, weather limitations, and financial restrictions. Intensivists expressed concerns when having to rely on information from the referral site, especially when required to