OPEN ACCESS Freely available online

Maternal and Pediatric Nutrition

Perspective

Pediatric High Grade Gliomas: Challenges and Advances

Genzalo Verdugo*

Department of Basic and Clinical Oncology, Gabriela Mistral University, Santiago, Chile

DESCRIPTION

Pediatric High-Grade Gliomas (pHGGs) are a rare but devastating group of brain tumors that affect children and adolescents. These aggressive tumors originate in the glial cells, which provide support and nourishment to nerve cells in the brain. pHGGs pose significant challenges due to their complexity, limited treatment options, and the unique physiological differences in pediatric patients. This article aims to shed light on the characteristics, diagnosis, treatment, and recent advances in the management of pediatric high-grade gliomas.

Characteristics and subtypes

Pediatric high-grade gliomas encompass several subtypes, with the most common being Diffuse Intrinsic Pontine Glioma (DIPG), which occurs in the brainstem. Other subtypes include anaplastic astrocytoma and glioblastoma multiforme. pHGGs are characterized by their rapid growth, infiltrative nature, and resistance to treatment. They often cause symptoms such as headaches, seizures, vision problems, and changes in behavior or cognition.

Diagnosis and challenges

Diagnosing pHGGs involves a combination of imaging techniques, such as Magnetic Resonance Imaging (MRI), and a biopsy to confirm the tumor type. However, obtaining a biopsy can be challenging due to the tumor's location and the risks associated with the procedure. Additionally, pHGGs share some features with adult gliomas, but they exhibit unique genetic and molecular characteristics, emphasizing the need for tailored approaches to pediatric cases.

Treatment approaches

The treatment of pediatric high-grade gliomas requires a multidisciplinary approach involving neurosurgeons, oncologists, radiation therapists, and supportive care teams. Treatment strategies often include a combination of surgery, radiation therapy, and chemotherapy. However, due to the blood-brain barrier's impermeability and the potential for long-term side effects in developing brains, treatment decisions are complex and require careful consideration.

Recent advances and promising research

Recent research in pediatric oncology has led to a better understanding of the genetic and molecular drivers of pHGGs. These advancements have paved the way for targeted therapies that aim to disrupt specific pathways responsible for tumor growth. Immunotherapy, which harnesses the body's immune system to target cancer cells, is also being explored as a potential treatment avenue.

Precision medicine, which tailors treatment plans based on the individual's genetic makeup, is becoming more relevant in the field of pediatric oncology. This approach allows for personalized treatment strategies that may yield better outcomes and reduce potential side effects.

Clinical trials and collaborative efforts

Clinical trials play a critical role in advancing the treatment of pHGGs. These trials evaluate new therapies, combinations of treatments, and innovative approaches to improve survival rates and quality of life. Collaborative efforts among researchers, clinicians, and patient advocacy groups are essential to accelerate progress in understanding these rare tumors and developing effective treatments.

Supportive care and quality of life

Given the challenges of treating pediatric high-grade gliomas, supportive care is crucial to improve the patient's quality of life. This includes managing symptoms, providing psychological support, and addressing the unique needs of pediatric patients and their families. Palliative care may also be integrated to enhance comfort and manage symptoms when curative options are limited.

Pediatric high-grade gliomas remain a formidable challenge in the field of pediatric oncology. While advancements have been made in understanding the biology of these tumors and

Correspondence to: Genzalo Verdugo, Department of Basic and Clinical Oncology, Gabriela Mistral University, Santiago, Chile, E-mail: genzaloverdugo@uchile.cl

Received: 29-Aug-2023, Manuscript No. MPN-23-26018; **Editor assigned:** 01-Sep-2023, PreQC No. MPN-23-26018 (PQ); **Reviewed:** 15-Sep-2023, QC No. MPN-23-26018; **Revised:** 22-Sep-2023, Manuscript No. MPN-23-26018 (R); **Published:** 29-Sep-2023, DOI: 10.35248/2472-1182.23.8.204

Citation: Verdugo G (2023) Pediatric High Grade Gliomas: Challenges and Advances. Matern Pediatr Nutr. 8:204.

exploring innovative treatment approaches, much work remains to improve outcomes for affected children and adolescents. Collaboration between researchers, healthcare professionals, and advocacy groups is vital to further the understanding of pHGGs, develop targeted therapies, and ultimately improve the prognosis and quality of life for young patients battling these aggressive brain tumors.