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In Oncology, my research focuses primarily on low-grade gliomas (LGGs), particularly the aggressive subtypes. One facet of my research program centers on studying novel molecular-targeted therapies to avoid the many chemotherapy regimens that children with LGG require because of multiple recurrences. Another aspect of my research program focuses on improving the quality-of-life (QoL) of patients with LGG. Maintaining a relatively high QoL is important for survivors of LGG because of the generally excellent long-term survival rates for children with LGG. Another important approach to improving quality of life in LGG is by decreasing the diagnostic interval and this can be done through research and education. I am working on an educational initiative that will be implemented at a global level. This will help decrease delayed diagnosis in children with CNS tumors.

Approximately 85% of children with cancer reside in developing countries. Another important aspect of my research program is improving the care for this underserved population through a global approach. Integrating telemedicine in these efforts has helped many children around the world, as documented through work by the Global Pediatric Medicine (GPM) department at St. Jude in Central America and the Middle East. In addition to decreasing morbidity and mortality for patients with LGG in developing countries through telemedicine-based initiatives, the potential for increasing research efforts in the developed world is evident, as shown through a GPM initiative undertaken for children with osteosarcoma in Chile. In addition, cancer centers in developing countries can support biologic and genetic research by providing tumor tissues for molecular analyses in pediatric cancer studies. One of my main strengths is building programs and I plan to apply this skill in different countries to help build local capacity to treat brain tumors and retinoblastoma at a global level.

Topic: Delayed Diagnosis in CNS Tumour

Delayed diagnosis in cancer have major negative impact on outcome and quality of life. In CNS tumors especially in children the impact can be more serious.

There are different causes for delayed diagnosis in CNS tumors but the number one is medical education curricula. We need to stop teaching that a typical CNS tumors presentation is the triad of morning vomiting, morning headache and papilledema. We need to stop using glioblastoma as the poster child for CNS tumors. We need to start teaching that the vast majority of CNS tumors in children and adults are low grade tumors such as low grade gliomas, meningiomas pituitary adenomas and

others. This will create a paradigm shift in the way health care provides suspect CNS tumors. Finally, we need to emphasize the need to get it right the “first time” through good history and good exam and not extra imaging. Not getting it right the first times will cause what I call “Diagnostic Imprinting” as others will follow our initial erroneous diagnosis.

Topic: Updates on Low Grade Glioma

Very few cancers witnessed the major therapeutic paradigm shift as Low Grade Glioma. After 3 decades of conventional non-curative chemotherapeutic regimens with complete response rate of less than 5% to a wide variety of targeted therapy options depending on what genetic aberrations the tumor have. We now have multiple MEK inhibitors, few anti V600E inhibitors and one Pan BRAF inhibitor in addition to other targeted therapies such as mTOR and FGFR inhibitors.