



Hyundai Hope on Wheels Hyundai Scholar Research

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Pediatric brain tumors remain amongst the most common malignancies in childhood, second only to leukemia, representing 20% of all childhood cancers in the United States. Although significant strides have been made in therapies for other pediatric malignancies, mortality for patients with brain tumors remains high. The mainstay of therapy for CNS tumors has been a combination of surgery, chemotherapy, and radiation. High dose chemotherapy with stem cell transplant has been proposed as an alternative to radiation, in very young children and for relapsed patients. Stem cell transplantation however is not without significant side effects as well as transplant related mortality.

Busulfex has historically been used in the setting of conditioning regimens for stem cell transplants, and has been shown to be effective therapy for pediatric brain tumors both in vitro and in vivo. Busulfex is a unique agent in that it crosses the blood brain barrier, reaching concentrations in the central nervous system (CNS), nearly equal to that in the plasma. Capitalizing on this property, we propose that Busulfex can be an affective agent for pediatric brain tumors at a lower dose, thus obviating the need for stem cell transplant. Children who are between the ages of 2 and 21 years of age with any histological proven recurrent or progressive CNS tumor are eligible for this study. Following enrollment, patients will undergo stem cell harvesting as a precautionary measure. Patients will then receive Busulfex as a 24 hours infusion every 4 weeks for 6 cycles, provided that they maintain the required blood counts. Should their blood counts not recover within 42 days following the infusion, they will receive their

previously harvested stem cells. The main objective of this trial is to determine the maximum tolerated dose of Busulfex given as a 24 hour infusion to patients with recurrent, progressive, or refractory primary brain tumors. As secondary aims, we hope to learn more about the pharmacokinetics of a continuous infusion of Busulfex, and to obtain data regarding progression free survival and event free survival when Busulfex is used at submyeloablative doses in children with recurrent, progressive, or refractory brain tumors.