

The Children's Hospital of Philadelphia – Optic Pathway Glioma Research

The Children's Hospital of Philadelphia (CHOP) is one of the world's leaders in optic pathway glioma (OPG) research. Our focus is on identifying new treatments and novel biomarkers (particularly using new imaging modalities) and exploring functional outcomes for children with these tumors. Fortunately, the minority of OPGs are life-threatening. Unfortunately, in most cases, they cause vision loss. CHOP led an international, 10 hospital study of visual outcomes in patients with OPG. This identified for the first time that treatment with chemotherapy can lead to regaining some vision in children with OPG. CHOP is now leading a larger study that includes more than 25 hospitals around the world with the goal of enrolling 250 patients with OPG.

CHOP is also focused on defining risk factors and identifying biomarkers for progression of OPG. Since not all patients with OPG will require treatment for their tumor, it is crucial to define the factors predictive of tumor progression. The study enrolling 250 OPG patients will evaluate risk factors (such as tumor location, patient age, patient gender, etc.) for visual outcome and tumor progression.

CHOP has separate ongoing studies trying to identify molecular changes within these tumors or MRI features of OPGs that will predict the tumor's aggressiveness. The identification of molecular changes will likely also lead to new therapies for OPG. In addition, we have multiple studies evaluating biomarkers of visual function in OPG patients utilizing novel MRI techniques (such as diffusion tensor imaging) or new technologies such as optical coherence tomography, which can measure the thickness of the retina.

