

## Low Birth Weight & other Risk Factors for Hepatoblastoma-Living and Deceased Cases (AEPI04C1)

IRB# 2005-061

Principal Investigator: James Feusner, MD

### Synopsis:

Hepatoblastoma is a rare liver tumor that affects mostly young children. The incidence rate in the United States is about 9 cases per million children less than one year old and 3.3 cases per million children ages 1 to 4 years old. However, the incidence of hepatoblastoma has roughly doubled between 1975 and 2002. Because of its rarity, only very small (<100 cases) studies of hepatoblastoma have been conducted to date. While nothing is definitive about these studies, they have suggested associations of hepatoblastoma with maternal smoking while pregnant, parental occupation in certain industries, and with susceptibility genes.

Recent evidence confirms that risk of hepatoblastoma is increased 40-fold in children with very low birth weight (VLBW: < 1,500 grams) and doubled in children with low birth weight (LBW: 1,500-2,500 grams). The reasons behind these findings are not clear, but it may be that the intense treatment received by premature babies contributes to their increased risk.

We propose to conduct the largest and most comprehensive case-control study of hepatoblastoma to date. We will collect 600 cases of HB diagnosed at U.S. Children's Oncology Group institutions in 2000-2008, about 120 of whom should be LBW and VLBW. Controls (480 normal birth weight; 120 LBW; 120 VLBW) will be selected from United States birth registries and will be frequency matched on birth weight, sex, year of birth, and region of diagnosis. Mothers of participating children will take part in an hour long telephone interview that covers demographics, reproductive history, family health history, maternal health habits while pregnant, and parental occupation. Children and their mothers (because many cases of hepatoblastoma may start in utero) will also be asked to give a sample of cheek cells for DNA analysis. Lastly, medical records from around the time of birth will be collected for participating children who were LBW or VLBW.

The goals of this study are to:

- 1) Determine whether duration and intensity of treatment for prematurity increases risk of hepatoblastoma among LBW and VLBW children.
- 2) Examine the role of parental occupation and maternal lifestyle while pregnant in the risk of hepatoblastoma.
- 3) Compare genes in cases, controls, and their mothers.