**Abstract Title:** Evaluation Of The Role Of Liver Function Tests In Screening For Metastatic Uveal Melanoma

**Author Block:** Eric Nudleman, J. William Harbour. Ophthalmology & Visual Sciences, Washington Univ School of Med, St Louis, MO.

**Abstract Body:**

**Purpose:** Uveal melanoma has approximately a 50% mortality due to the rate of metastatic disease. Non-metastatic tumors are genetically distinct from those that metastasize, termed class I and class II tumors respectively. More than 90% of metastasis from uveal melanoma are hepatic. Practice patterns vary among ocular oncologist regarding the use of liver imaging studies (CT, MRI, ultrasound) and serum liver function tests in screening for metastatic disease. The utility of standard liver function tests (which includes Alkaline Phosphatase, Bilirubin, ALT, and AST) is considered limited by a low sensitivity. However, GGT has been reported to have a high sensitivity. Here we report a retrospective case-control study of the performance of GGT and LDH when combined with standard liver function tests in screening for metastatic melanoma.

**Methods:** This is a retrospective case-control series comparing screening liver function test in 45 patients with and 23 patients without biopsy proven hepatic metastasis of uveal melanoma. The included patients had a tissue diagnosis of uveal melanoma between November 1998 and July 2010 by either fine needle aspiration or enucleation. Patients were screened for metastasis with a combination of serum liver function tests (which included GGT, LDH, Alkaline Phosphatase, Bilirubin, ALT, and AST) and liver imaging studies (including CT, MRI, and ultrasound). Any abnormal liver function studies that prompted liver imaging and subsequent biopsy were considered true positive tests. The percent of patients with hepatic metastasis identified by abnormal liver function tests were evaluated and compared with those identified by liver imaging studies. The sensitivity and specificity of screening liver function tests were calculated.

**Results:** Approximately 33% of patients with hepatic metastasis were identified by abnormal liver function tests. Metastasis in the remaining patients were identified by CT (51%), MRI (5%), ultrasound (5%) and physical exam (5%). Only two patients (0.04%) had false negative screening LFTs (that included GGT and LDH) within six months of a biopsy proven liver metastasis. The sensitivity of individual LFTs ranged from 15% to 69%, and the specificities from 85%-100%, with GGT being the most sensitive and the most specific.

**Conclusions:** Adding GGT and LDH to standard LFTs increases the sensitivity of detecting hepatic metastasis from approximately 15% to 76%. These serum studies provide a safe, reliable, and cost effective option for ocular oncologists. When combined with liver imaging studies, alternating every 4 months, earlier detection of hepatic metastasis may allow for more effective treatment opportunities.

**Commercial Relationships:**

Eric Nudleman, None; J. William Harbour, None

**Support:** None