

## **SESSION V: Graduate Student Presentations**

# Effects of Vena Caval Banding on Portal Blood Flow in Experimentally-Induced Multiple Portosystemic Shunts

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## ABSTRACT

Indocyanine green (ICG) extraction and clearance following infusion to steady state were determined and used to calculate portal blood flow in normal dogs and dogs with dimethylnitrosamine-induced multiple portosystemic shunts that underwent attenuation (banding) of the abdominal caudal vena cava. Both groups of dogs underwent surgery where indwelling silastic catheters were placed in the caudal vena cava, portal vein and a hepatic vein to permit intermittent blood collection, and the vena cava was attenuated. A bolus injection of 0.5 mg/kg ICG was administered IV followed by a steady state infusion of 0.097 mg/min for two hours. Extraction ratios (0.0-1.0), clearances (mL/min/m<sup>2</sup>) and flow rates (mL/min/m<sup>2</sup>) were determined immediately before and after attenuation, and again at 6 hours, 48 hours and 7 days after surgery. Using a logarithmic transformation of the data, comparisons between groups were made using a general linear model. Comparisons within groups among times were made using a general linear model with repeated measures. Contrasts were used to identify significant differences ( $P \leq 0.05$ ).

Extraction ratios were higher in control dogs at all times (mean of all times: control =  $0.17 \pm 0.03$ ; diseased =  $0.03 \pm 0.005$ ) except 48 hours when there was no difference between groups. Clearance was higher in control dogs at all times (mean of all times: control =  $57 \pm 13$ ; diseased =  $14 \pm 2$ ). Portal blood flow did not differ between groups at any time except immediately after attenuation where the flow was higher in diseased dogs (mean immediately after banding: control =  $449 \pm 92$ ; diseased =  $1883 \pm 1282$ ). There were no differences among times in portal blood flow for either group. Results of this study indicate that portal blood flow is not changed or improved by the banding procedure in this model of experimentally-induced multiple acquired portosystemic shunts as measured using the described methods.