

Sensitivity and specificity of serum bile acids and biochemical variables to assess postoperative closure of congenital extrahepatic portosystemic shunts in dogs

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Objectives: To assess sensitivity and specificity of paired serum bile acids (SBA) and other serum biochemistry variables to predict shunt status in dogs 3 months after surgical attenuation of a congenital extrahepatic portosystemic shunt (EHPSS).

Methods: Dogs with surgically attenuated EHPSS were retrospectively enrolled if blood sampling and medical imaging (transsplenic portal scintigraphy and/or computed tomography angiography) were performed 3 months postoperatively.

Results: Fifty-two surgical cases were included. Three months post-operatively, shunt closure was successful in 29 dogs and non-successful in 23 dogs (13 dogs had a patent original shunt and 10 dogs developed multiple acquired shunts). Paired serum bile acids and alanine aminotransferase (ALT) activity were significantly higher in the non-successful group compared to the successful group ($p < 0.0001$ and $p = 0.0006$). Sensitivity and specificity assessment of SBA and ALT gave optimal results at 50 $\mu\text{mol/L}$ and 80 U/L, respectively (upper reference limits 15 $\mu\text{mol/L}$ and 90 U/L). The sensitivity and specificity of the combined SBA $>50 \mu\text{mol/L}$ and ALT $>80 \text{ U/L}$ to diagnose non-successful EHPSS closure were 75 % and 91%, respectively.

Statement (conclusions): Dogs with combined SBA $>50 \mu\text{mol/L}$ and ALT $>80 \text{ U/L}$ results 3 months postoperatively were very likely to have either a patent or acquired shunts. However, when combined SBA and ALT results were below the proposed cut-offs, that less reliably indicated surgical success.