Diagnostic value of liver function tests and abdominal ultrasonography in dogs clinically suspected of congenital portosystemic shunts

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Introduction: Diagnosing a congenital portosystemic shunt (cPSS) in dogs can be challenging. The aim of this study is to report test characteristics of fasting ammonia (FA), preprandial, postprandial and paired serum bile acid (SBA) concentrations and abdominal ultrasound (aUS) in their ability to diagnose cPSS.

Materials and methods: Medical records of dogs suspected of having cPSS were retrospectively reviewed. Dogs were included the presence of cPSS was confirmed or excluded based on computed tomography angiography (CTA), transsplenic portal scintigraphy (TSPS) and/or surgical exploration. Test characteristics including confidence intervals of the different blood tests and aUS were calculated.

Results: In total, 192 dogs suspected of cPSS were included: a cPSS was confirmed in 147 dogs and ruled out in 45 dogs. Fasting ammonia had the best combined sensitivity and specificity (77.4% and 93.3%, respectively) to diagnose cPSS and had an outstanding positive predictive value (97.8%). The negative predictive value was 100% for paired SBA, making paired SBA the best test to rule out cPSS (sensitivity 100% and specificity 16.7%). Sensitivity and specificity of aUS were 80.8% and 90.0%, respectively.

Discussion/Conclusions: In dogs with clinical signs compatible with cPSS, elevated FA rules in cPSS whereas normal paired SBA make the presence of a cPSS unlikely. Although aUS is a useful tool to diagnose cPSS, additional imaging is required to visualize the cPSS in nearly one fifth of cases. Furthermore, the localization of the cPSS can be misdiagnosed, especially in case of extrahepatic cPSS that do not insert into the prehepatic vena cava.