
Acute liver failure (ALF) models in pigs have been widely used for evaluating newly developed liver support systems. But hardly any guidelines are available for the surgical methods and the clinical management. The study validated several standard operating procedures describing in detail the surgical method and intensive care monitoring and treatment (control of potassium, glucose and bicarbonate levels, cardiovascular and intracranial pressure monitoring, etc.). ALF was induced in animals with a mean of 56 kg. Two surgical methods were compared: ligation of hepatic arteries with either end-to-side portacaval shunt (ESPS) and bile duct ligation or side-to-side portacaval shunt (SSPS) without bile duct ligation. During total portal vein clamping, the animals in the ESPS group developed severe hypotension, splanchnic congestion and metabolic acidosis. One animal died after approximately 1.5 h. This model therefore represents a multiorgan failure model rather than an isolated ALF model. In the SSPS group, none of these side effects were observed, while clinical, laboratory and histopathological signs of ALF were evident. A reproducible model in pigs representing ALF can be established with the help of the standardized monitoring and treatment procedures presented.