

Summary

Bioartificial liver in the treatment of experimental acute hepatic failure in a large laboratory animal

Aim: To evaluate bioartificial liver (BAL) in the treatment of acute liver failure in the experiment.

Methods: 10 minipigs weight 25 – 30 kilograms with experimental acute liver failure (ALF) by surgical devascularization with portocaval by-pass were treated by BAL. The biochemical and hemodynamical parameters of ALF including intracranial pressure (ICP) were measured. The results were compared to control group without BAL treatment.

Results: To compare plasma bilirubin there was statistically significant difference between experimental and control groups in 6th and 9th hours to favourite BAL group of minipigs (20,86 vs. 10,60, 22,29 vs. 11,75) and in the 12th hour (37,4 vs. 12,88). The value of ICP in both groups was not significant.

Conclusion: The functionality of BAL on our own surgical model of ALF was proven. Initial 85 % viability of fresh isolated porcine hepatocytes and their survival in the time of BAL treatment was reached. Bilirubin plasma concentration has significantly changed in comparison in both groups. ICP values were not changed significantly.

Key words: acute liver failure - minipig - bioartificial liver - BAL - Bioreactor - hepatocytes - intracranial pressure