

ABSTRACT

Aim of the study:

Verification of safety and efficacy of mesenchymal stem cell therapy after extensive liver resection in a pig model.

Type of study:

Experimental study

Name and location of study site:

Department of Surgery, Faculty of Medicine, Charles University in Pilsen

Set and methodology:

A total of 18 experimental animals underwent liver resection in the extent of hemihepatectomy. Mesenchymal stem cells were administered perioperatively in 10 pigs, the remaining 8 pigs were included in the control group. Blood samples were taken at regular intervals for biochemical and immunohistochemical examination. Control sonographic examination was performed at weekly intervals. Experimental animals were sacrificed on the 28th postoperative day and liver tissue samples were subjected to histological examination.

Results: There were no statistically significant differences in any of the monitored parameters. Sonographic examinations, however being performed by one experienced radiologist, did not provide valid data from which liver hypertrophy could be assessed.

Conclusion: Mesenchymal stem cell therapy appears to be a safe method.

However, the results of our study did not show a positive effect of this treatment on liver regeneration after surgical resection. We find sonographic volumetric examination of the liver unsuitable for assessing the extent of liver regeneration