

EFFECT OF FOLINIC ACID ON HEPATIC REGENERATION: ANTIOXIDANT AND/OR HEPATOTROPHIC EFFECT

V. Portugal, I. G^a Alonso, C. Emparan, J. L. Conty, J. G. Pereira and J. Méndez

Lab. of Experimental Surgery (Univ. of the Basque Country), Bilbao (Spain).

In previous studies we have demonstrated that normothermic liver ischemia liver regeneration following 70% hepatectomy or CsA administration. This effect was partially reversed by antioxidant drugs. Of all the drugs tested, the folinic acid showed the greatest effect, achieving the total reversion of ischemia induced lesions. After these experiences, we try to clarify whether the folinic acid exerts its action through a pure antioxidant effect or it has some hepatotrophic additional effect. *Material and methods:* Eighty Sprague-Dawley rats (250 g, male) were used. Under ether anesthesia and through a midline laparotomy, the different procedures were carried out. Hepatic ischemia was induced for 15 min. by clamping the porta hepatis with Yassargil clips. The superior mesenteric artery and the celiac trunk were also clamped to avoid splanchnic congestion. Folinic acid (2.5 mg/kg) was administered through the left femoral vein by means of a perfusion pump, just prior to reperfusion. When necessary, hepatectomy was performed just after reperfusion. All animals were sacrificed 24 h. later and fragments of liver were quickly removed and embedded in paraffin. The DNA content of 100 hepatocytic nuclei were measured by means of a microcytospectrophotometer (Feulgen reaction). The regenerative capacity was expressed as the percentage of regenerating hepatocytes (%RH). The results were statistically compared using the rank sum test. *Experimental series:* 1) Normoperfused livers (control); 2) Folinic acid administration; 3) 40% Hepatectomy; 4) 40% Hep.+Folinic acid; 5) 70% Hepatectomy; 6) 70% Hep. + Folinic acid; 7) Ischemic livers + 70% Hep.; 8) Ischemic livers + 70% Hep. + Folinic acid. *Results:* %RH: 1) 1.211%; 2) 5.071%; 3) 23.00%; 4) 25.65%; 5) 22.27%; 6) 41.03%; 7) 8.852%; 8) 29.10. *Conclusions:* 1. Folinic acid has showed a hepatotrophic effect, inducing hepatic regeneration on resting liver (1.211 vs 5.071, $p < 0.005$), and also improving %RH after partial hepatectomy (22.27 vs 41.03, $p < 0.005$). 2. Folinic acid increases the regenerative response following normothermic liver ischemia (8.82 vs 29.10, $p < 0.0005$), reaching regenerative levels similar to those of normoperfused livers (22.27, $p = 0.146$). 3. Finally, folinic acid administration prior to reperfusion is effective to abrogate the deleterious effect of normothermic hepatic ischemia on hepatic regeneration.

BILIARY PERITONITIS AFTER T-TUBE REMOVAL: EXPERIMENTAL STUDY OF PATHOGENIC FACTORS (LATEX VS SILICONE, SYSTEMIC CORTICOIDS ADMINISTRATION)

P. Ramírez, A. Piñero, J. Sánchez, J. M. Ruiz, A. Moreno, R. Robles, S. Bueno and P. Parrilla

The aims of the present study are: 1) to compare the degree of postoperative peritoneal adhesions (PPA) conditioned by two different materials (latex and silicone); 2) to analyse the influence of corticoids on PPA.

Animal and methods: Forty Wistar rats were used, divided into 4 groups: Group I (n = 10), Latex Control; Group II (n = 10), Latex Corticoids; Group III (n = 10), Silicone Control; Group IV (n = 10), Silicone Corticoids. *Surgical method:* 2 cm lg midline minilaparotomy, positioning a 2 cm segment of T-tube in the subhepatic space. In groups I and II the tube was latex, and in groups III and IV silicone. *Corticoid administration:* the rats in groups II and IV were treated with 30 mg/kg/day of IM methylprednisolone for 30 days, and the PPAs measured using a point scale which considered: 1) mobilisation of the tube; 2) percentage of surface covered outside the tube; 3) percentage of lumen occupied inside the tube; 4) degree of tenacity; 5) existence of vascularisation. The maximum score possible for each rat was 10 points, and minimum 0. *Statistical method:* The non-parametric KRUSKAL-WALLIS and MANN-WHITNEY test were used.

Results: The overall scores of the rats in each group were: a) Group I (Latex), 82 points; b) Group II (Latex-Corticoids), 46 points; c) Group III (Silicone), 33 points; and d) Group IV (Silicone-Corticoids), 18 points. Silicone conditioned fewer PPAs than latex ($p < 0.001$). Corticoid administration significantly reduced the PPA rate in both the Latex ($p < 0.001$) and Silicone groups.

Conclusions: 1) Silicone conditions PPAs to a lesser extent than Latex; 2) Corticoids reduce the PPA rate with both Latex and Silicone.