

APPLICATION OF AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS IN DIGESTIVE ANASTOMOSIS ON ANIMAL MODEL

J.A. Fatás¹, **F.J. Pérez-Duarte**², M.A. Sánchez-Hurtado², F.M. Sánchez Margallo³

¹Head of General Surgery, Royo Villanova Hospital, Zaragoza, Spain.

²Laparoscopy Unit, Minimally Invasive Surgery Centre Jesús Usón, Cáceres, Spain.

³Scientific Direction, Minimally Invasive Surgery Centre Jesús Usón, Cáceres, Spain.

Background: The main objective of this study is to improve the results of the anastomosis in the digestive tract, using platelet-derived growth factors (PDGF). In this way, we seek to improve the biological status of the affected intestinal segments, decreasing the risk of suture dehiscence.

Methods: 12 porcine were used, of the Large-White breed, and weighing and average of 35 ± 3 kg. These animals were divided into two study groups:

- Group 1: anastomosis reinforced with PDGF.
- Group 2 (control): anastomosis performed without these factors.

In all animals an end-to-end anastomosis was completed in ileum, at 100 cm from the ileocecal valve, performed with a continuous suture pattern using a monofilament reabsorbable 3/0 suture with round needle. After the anastomosis PDGF were applied in group 1 in both ends of the suture. The animals were sacrificed at days one, three and seven after surgery, in order to perform suture leak test for the anastomosis and obtain the necessary samples for histopathological study.

Results: The anastomosis was performed in all animals without complications and noteworthy clinical follow up of the animals revealed no sign of pain or infection. The leak test revealed a greater resistance in the anastomosis in the animals in which PDGF were applied (Group 1 109.61 ± 39.77 vs Group 2 82.61 ± 19.92), although without statistically significant differences. Histological analysis revealed better tissue healing in group 1, but without statistical significance.

Conclusions: Our results suggest that the application of platelet-derived growth factors in autologous pig model after digestive anastomosis, improves its quality and strength. However, further studies are needed with a larger sample size in order to obtain statistical confirmation of these findings.