

# **Hemodynamic behavior of arterial anastomosis using fibrin sealant: experimental study in swine.**

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## **Abstract:**

**OBJECTIVES:** To evaluate the flow, tear pressure, the need of reinforcement stitches in sutured arteries reinforced or not using fibrin sealant after a cross-section.

**METHOD:** Tissucol fibrin sealant was used. The femoral and carotid arteries of seventeen swine from the same breed (weighing from 15 to 20 kg) were cross-sectioned after heparinization and subjected to anastomoses using a single continuous plane of prolene 7-0. We worked with 68 artery samples, 34 in the Treatment Group and 34 in the Control Group. For each animal, one carotid and one femoral artery randomly received fibrin sealant with the contralateral side being used as a control. The need and the number of reinforcement stitches were recorded. Ten minutes after protamine infusion, the animals were sacrificed and the arteries were catheterized. The arteries were measured and placed on a flow meter. The arteries were then subjected to air infusion at increasingly higher pressures (stepwise increases of 25 mmHg), the grafts were dipped in saline solution, the first air leakage was observed and the tear pressure recorded.

**RESULTS:** The external diameters and thickness of the arteries were similar in both the Treatment and Control Group. There was no significant difference between the groups regarding the tear pressure ( $p=0.329$ ), flow rate ( $p=0.943$ ) and the number of samples with a tear pressure above 200 mmHg. However, the sealant reduced the number of reinforcement stitches necessary ( $p=0.029$ ).

CONCLUSION: Fibrin sealant reduces the need of additional stitches.