

EVALUATION OF ADIPOCYTES VIABILITY AFTER FAT HARVESTING

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Statement of the problem: Fat grafting is one of the most popular surgical procedures. Fat is an optimal material for the contouring of soft tissues. However, long-term results of fat transfer are often disappointing because of an unpredictable amount of resorption up to 70%. Improving the results of fat grafting requires not only optimization of techniques and devices, but also needs a detailed analysis of the fat graft. The purpose of this study was to analyze the viability of adipocytes after fat harvesting.

Methodology & Theoretical Orientation: The fat was obtained from the abdominal area of ten healthy women aged 38.7 ± 11.6 years with a usage of suction-assisted lipectomy. Lipoaspirate was studied in 3 hours, 12 hours and 24 hours after surgery and was stored in NaCl 0.9% for 24 hours at room temperature. The viability of adipocytes was evaluated by microscopy of vital fat dyed with 0.25% Trypan blue.

Findings: The average number of dead adipocytes was 5%. In one patient, 92% of adipocytes were dead in 3 hours after the surgery. In four patients, 12 hours later, up to 80% of adipocytes were alive. In 24 hours, five samples had non-colored adipocytes in the center of the fat conglomerate. It may indicate a lack of penetration of the dye into the center of the fat conglomerate and can be interpreted as a false positive test for survival. Small conglomerates of fat cells lying in one layer were available to a better analysis.

Conclusion & Significance: Within 3 hours after fat harvesting, 95% of the adipocytes remain alive and are suitable for fat transfer. Some samples remain alive in saline solutions in 12 hours at room temperature. In some cases, most of adipocytes died within 3 hours after surgery, it requires a detailed study.

Biography

PhD Natalia I Khramtsova and MD Professor Sergey A Plaksin are developing such directions of scientific research as regenerative surgery, body image and quality of life in surgery, morphological studies of adipose tissue and connective tissue.

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