

Clinical and Morphological Aspects of High-intensity Focused Ultrasound (HIFU) Application in Breast Fibroadenoma Treatment

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Abstract

Introduction: Purpose of this study is to evaluate efficiency of HIFU method through morphocytological analysis and supervision during two-year post-treatment period, analyze relation between ablation power and morphological results.

Materials and Methods: The study involved 80 patients with breast fibroadenomas: 40 were HIFU-treated (main group) and others surgically (control). Morphocytological analysis was carried after 1 day, 12 months and 24 months after treatment. For comparison analysis, all obtained results were used for statistical analysis with software STATISTICA and IBMSPSS. We conducted in-vitro investigations and morphocytological study with 3 circular cross-sections of fibroadenomas ablated by HIFU with 100W, 200W, 300W. All patients were surveyed by Questionnaire SF-36 checking physical functioning, level of pain, overall well-being, etc.

Results: No postoperative complications in main (HIFU) and 8 complications in control groups, 5 recurrences after 12-18 months were revealed in control group and 0 in main, inpatient stay duration was less by 52% in main group than in control group. Power ablation investigations show that 100W ablation created initial changes related to coagulation necrosis, full coagulation necrosis observed at 200W and complete destruction of tissue at 300W. Intensity of pain by 44.7% and stimulated early resumption of functional activeness by 66.7%.

Conclusions: HIFU therapy is new effective treatment method for breast fibroadenoma, that has less post-treatment complications and recurrences than surgical method, and may be used as an independent treatment of breast fibroadenoma.