Functional Evaluation of Artificial Ileal Bladder by "Double U" Method within Separate Postoperative Period

Introduction and Objective: Today the only method of curative therapy of invasive bladder cancer (BC) is cystectomy. Formation of artificial intestinal bladder is the most functional out of great number of suggested methods of urine derivation allowing reconstruction of urination act. Determination of function of artificial bladder, its influence upon subjective sensation, metabolic changes, urodynamics and controlled urination allows objectivization of quality of life of patients and efficiency of the performed operation. The objective to increase efficiency of treatment and quality of life of patients with bladder cancer who underwent radical cystectomy with ileoneocystoplasty within clinic modification (Double U) through determination of functional characteristics of ileal bladder (IB), analysis of encountered complications and development of measures of their prevention.
Materials and Methods: There were 47 patients with invasive BC exposed to retrospective analysis by means of which radical cystectomy with formation of artificial ileal bladder in clinic modification (Double U) was made from 2008 till 2011. Data of X-ray examination (plain and excretory urography, urethrocystography, SCT and MRT with application of technique of MR urography in hydrography mode), urofluometry and cystotonometry, urethra profilometry were used for evaluation of function of IB. Quality of life was evaluated through questionnaire SF-36 (Short-Form 36 Item Health Survey).
Results: After removal of urethral drainage urinary incontinence occurred in 11 (23.4%) cases, in 6 months – in 7 (14.8%) cases. Average functional capacity of IB was primarily 215 ± 37 ml, in 6 months - 495 ± 46.6 ml that coincided with increase of time between urinations from 2 to 4 hours. During performance of ascending urethrocystogram constriction of urethra-ileal anastomosis was diagnosed within 3 (6.4%) patients and eliminated by means of transurethral optical urethrotomy. According to data of urofluometry volume of urination made 517 ± 112 ml, during urination it did not exceed 60 sec. at average speed of urination 12.1 ± 3.4 ml/sec. and maximum speed of urination – 20.4 ± 3.3 ml/sec. during cystotonometry threshold of subjective sensation occurred within filling volume of 390 ± 46 ml, the first feeling of urination – at volume of 420 ± 45 ml and imperative – at 612 ± 97 ml and intraileal pressure of 16.2 ± 1.4 cm w.g. Length of area of maximum pressure in urethra was 21 $\pm$ 3 mm that indicates satisfactory function of continent device. According to data of questionnaire SF-36 physical component has increased within 6 months of observation from 43.5 $\pm$ 8.9 to 65.1 $\pm$ 10.3 points while psycho-emotional component has increased from 49.5 $\pm$ 11.8 to 66.4 $\pm$ 11.7 points. These indices reflect high level of quality of life of patients.
Conclusion: Formation of artificial ileal bladder in clinic modification (Double U) allows saving of integrity of urinary tract, reconstruction of urination act maximum approximate to natural by means of formation of reservoir of low pressure with volume up to 612 ± 97,6 ml that gives possibility to improve quality of life of patients.