

Реферати

МОРФОЛОГІЧНЕ ОБҐРУНТУВАННЯ КРИТЕРІЇВ ПРОГНОЗУВАННЯ КЛІНІЧНОГО ПЕРЕБІГУ ГЕНЕРАЛІЗОВАНОГО ПАРОДОНТИТУ

Гасюк Н.В., Левандовський Р.А., Бородач В.О., Клітинська О.В.

У статті запропоновано шляхи оптимізації діагностичного процесу у пародонтологічних пацієнтів, шляхом застосування інтегрованих цитологічних параметрів. Отримані результати дають можливість розробки морфологічного алгоритму для об'єктивізації пародонтологічного статусу пацієнтів. Застосування запропонованого алгоритму обстеження, яке включає вивчення клітинного складу пародонтальних кишень, а також морфологічні зміни епітелію, дає можливість доповнити існуючий арсенал традиційних діагностичних методів у пародонтології, більш точними та доказовими і пропонують ряд морфологічних прогностичних критеріїв клінічного перебігу даного захворювання.

Ключові слова: оптимізація, алгоритм, пародонтальна кишеня, ядро клітини, цитоплазма.

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МОРФОЛОГИЧЕСКОЕ ОБОСНОВАНИЕ КРИТЕРИЕВ ПРОГНОЗИРОВАНИЯ КЛИНИЧЕСКОГО ТЕЧЕНИЯ ГЕНЕРАЛИЗОВАННОГО ПАРОДОНТИТА

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В статье предложены пути оптимизации диагностического процесса у пародонтологических больных путем изучения клеточного состава парадонтальных карманов и применения интегрированных цитологических параметров. Полученные результаты дают возможность разработки морфологического алгоритма обследования, с целью объективизации пародонтологического статуса пациентов. Применение предложенного алгоритма обследования, которое включает изучение клеточного состава парадонтальных карманов, а также морфологические изменения эпителия, дает возможность дополнить существующий арсенал традиционных диагностических методов в пародонтологии, больше точными и доказательными и предлагают ряд морфологических прогностических критериев клинического течения данного заболевания.

Ключевые слова: оптимизация, алгоритм, парадонтальный карман, ядро клетки, цитоплазма.

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The choice of method of treatment of benign prostatic hyperplasia (BPH) in elderly patients with high operative risk is one of the pressing issues of modern urology. Selective arterial embolization (SAE) of the prostate – is a new method of treating lower urinary tract symptoms caused by benign prostatic hyperplasia. The article presents preliminary experience of performing this procedure in a group of 21 patients with high operative risk, describes indications, criteria of patient selection, technique of the procedure, results and prospects of utilizing this method in the clinical practice.

Key words: benign prostatic hyperplasia, selective arterial embolization.

The present paper is an integral part of the research study “Improvement of minimally invasive surgical treatment for diseases of the kidneys and urinary tract in the conditions of short-term stay surgical hospital”, state registration No. 0114U002120.

Benign prostatic hyperplasia (BPH) is one of the most prevalent urological diseases among men. According to data from the Institute of Urology, National Academy of Medical Sciences of Ukraine (Kyiv) prevalence of BPH in Ukraine is 1765.5 cases per 100,000 of the men's population who need urological surveillance and treatment [4]. In autopsy investigations of S.J. Berry and co-authors (1984) microscopic signs of BPH were found in 8% of patients aged under 30, in 10% of patients under 40, in 40% of patients aged 50-60, in 70% of patients aged 60-70 and in 80% of patients older than 80 years [6]. Because this disease has connection to age, patients are at a high risk for chronic concomitant diseases, such as metabolic syndrome, diabetes mellitus, cardiovascular diseases, which complicate treatment of these patients [1]. Although transurethral resection (TUR) of the prostate has been the “golden standard” in surgical treatment of BPH for the last 50 years, this operation has a high rate of complications [0]. Moreover, results of treatment prove to be unsatisfactory in 15% of patients [9].

Selection of the appropriate tactic and methods of treatment of BPH depends on the patient's somatic status, while the possibility of operative treatment is often limited by a high operative-anesthesiological risk. Therefore, minimally invasive methods of treatment with the minimal risk of complications and the lack of need in general anesthesia acquire significance. Its application can reduce

the time of hospitalization, increase the safety of treatment and as a result, improve the quality of life of these patients [2, 7, 10,8].

The purpose of the study was application of selective arterial embolization for treatment of benign prostatic hyperplasia in patients with high operative risk to minimize possible complications.

Materials and methods. In the urological department of the National Military-Medical Clinical Center of Ministry of Defense of Ukraine a novel, minimally invasive method of treatment of patients with the volume of the prostate gland over 40 ml, high operative-anaesthesiological risk with contraindications to standard operative treatment is established. The principle of selective arterial embolization (SAE) of the prostate lies in the reduction of arterial supply of the prostate, and as a result, ischemic necrosis of its significant part. The subsequent reduction of the prostate's volume causes the decrease of lower urinary tract symptoms (LUTS). Applying this method, which primary was proposed in 2000 by DeMeritt J.S. (USA), allows to exclude complications specific to traditional operations for BPH, and improve the quality of life in the short-term and long-term postoperative period. The development of this method was made possible due to the cooperation between two disciplines – urology and angiosurgery. The task of this investigation is to examine the effectiveness and safety of minimally invasive operative treatment of BPH in high-risk patients by SAE method.

We examined 21 male patients whose mean age was 74,9 (56-87) years with moderate and severe lower urinary tract symptoms. Mean International prostate symptom score (IPSS) was 24,3 (11-35) points, mean quality of life (QoL) index was 4,6 (2-6). Mean duration of disease was 6,9 years (from 1 to 18). Mean prostate volume was 92,3ml (maximum 190 ml).

The concomitant diseases were presented by diabetes mellitus in 3 (14,3%) patients, 6 (28,6%) patients had a history of myocardial infarction, 3 (14,3%) patients had stroke outcomes, Parkinson disease was diagnosed in 1 (4,8%) patient, 4 (19,0%) patients had aortocoronary bypass or/and coronary artery stent placement surgery, 7 (33,3%) patients took oral anticoagulant drugs (warfarin) in therapeutic doses because of an elevated cardiovascular risk. All patients received consultations from a therapist, cardiologist, neurologist and anesthesiologist. The selection criteria for performing selective arterial embolization were the following: prostate volume larger than 40 ml, contraindications for traditional operations on the prostate, high level of operative-anesthesiological risk (III-IV on American Society of Anaesthesiologists (ASA) scale), PSA total level less than 4 ng/ml or more than 4 ng/ml when the result of prostate biopsy is negative.

Selective arterial embolization of the prostate was performed in specialized angiosurgery operating room (pic. 1) under fluoroscopy control in patient's recumbent position under local anesthesia from one surgical approach, usually through the right femoral artery. 5 Fr introducer was inserted through the right common femoral artery, after that catheter Cobra 2 (C2) 5 Fr Glidecath (Terumo) was inserted into the femoral artery and its branches.

After inserting the catheter inside the left common iliac artery and finding its internal branch, digital subtractive angiography was performed in two projections to examine the anatomy of the prostatic arteries. Five milliliters of the contrast medium were injected with slow speed. After that, it was ascertained which artery supplies the prostatic gland. Afterwards, selective catheterization of the prostatic artery was performed by the 3Fr coaxial microcatheter EmboCath Plus (infusion microcatheter, France) or Progreat™ (Japan). After performing selective catheterization of the prostatic arteries, angiography was performed to confirm the location of the catheter inside the prostatic artery and visualization of the prostate gland vascularization in two projections. After that a microcatheter was inserted further into the prostatic artery. Spherical trisacryl gelatin microspheres Embosphere® Microspheres (Merit Medical Systems, Inc, USA) (pic. 2) or polyvinyl-alcohol hydrogel embolization microspheres BeadBlock™ (Device Technologies, Australia) 500-700 μm were used for embolization. The embolizing substance was injected slowly through the syringe. The final goal of embolization intervention was determined as cessation of arterial supply of the prostatic gland, which was confirmed by fluorography. Consistently identical intervention of the right side was performed.

Upon completion, the catheter was removed and an aseptic pressing bandage dressing was applied to the place of the puncture of the right femoral artery. The patient was transferred to the postoperative ward. The urethral catheter was removed after 24 hours.

The patients were examined, their levels of PSA total were monitored, a digital rectal examination was performed and an ultrasound investigation of the prostate was conducted, maximum urinary flow Qmax was measured, IPSS index and quality of life QoL subscore were determined. All patients were asked to sign an informed consent to the intervention.

Results of the study and their discussion. The intervention was performed successfully in 19 patients (90,5%). We determine success as - selective arterial embolization at least on one side with cessation of arterial supply of the prostate. Embolization was not successful in two patients due to atherosclerotic changes of pelvic arteries, and technical inability to insert the catheter into prostatic arteries. The intervention lasted from 90 to 220 minutes (at mean 140 minutes). The mean fluoroscopy time was 20-40 minutes (minimum 14 minutes, maximum 73 minutes).

Subsequent interviewing of the patients to estimate IPSS and QoL levels revealed significant improvement of these indexes (table 1). In particular, decrease of IPSS scores on average by 12 points after one month and improvement of the QoL index on average from 5 (unhappy) to 2 (mostly satisfied) during the same period. Mean IPSS and QoL indexes were 12 (1-32) and 2 (0-4) respectively. The reduction of the volume of the prostate was at mean by 35%, and increase of maximal urine flow at mean by 32%. First signs of clinical improvement were observed one week after the intervention.

No immediate or remote complications connected to angiography or embolization, which needed surgery or long-term hospitalization, were registered. Such complications as hematuria, lower urinary tract infection or others, which are often seen after transurethral resection of the prostate, were registered. Five patients complained about moderate pain and burning sensations in the urethra after embolization. Two patients had intoxication syndrome with fever and nausea. Both of them received parenteral cephalosporin antibiotics and non-steroid anti-inflammatory drugs with positive effect after 3-5 days. In one patient, we observed local hyperemia and hypersensitivity at the internal surface of the left thigh spreading to left gluteal area with no signs of intoxication. This case was qualified as non-target embolization and treated by intravenous infusion of crystalloids, vasodilators and antihistamine agents for 6 days with full recovery. The rest of the patients were discharged from the hospital after 2 days on condition of normal body temperature and no changes in blood tests.

Table 1

Baseline and treatment results of selective arterial embolization procedure

| Variable* | Baseline value | Value after treatment | p value |
|-------------------------------|----------------|-----------------------|---------|
| IPSS | 24,3±6,4 | 12,3±4,4 | <0,001 |
| QoL value | 4,6±0,9 | 1,4±0,4 | <0,001 |
| Prostate volume (ml) | 92,3±41,0 | 60,2±30,6 | <0,001 |
| Maximal urinary flow (ml/sec) | 7,7±3,4 | 10,3±2,4 | <0,01 |
| PSA level (ng/ml) | 5,1±6,9 | 4,38±3,6 | >0,01 |

Note: * Data are means ± standard deviations.

Comparing examination data of our patients before and after embolization of the prostate, including measurement of the prostate volume, maximal urinary flow, estimated International prostate symptom score (IPSS) and quality of life (QoL) index, we reached the conclusion about long-lasting and stable improvements. The International Index of Erectile Function (IIEF) was not measured in this research due to the advanced age of our patients.

Despite significant advances in the surgical management of benign prostatic hyperplasia, alternative therapies remain limited for patients with high operative risk. Selective arterial embolization offers minimally invasive treatment with moderate risk profile and significant symptom relief. Selective arterial embolization has been proven effective in patients with large prostates, who would be at excessive risk of hemorrhage during traditional operative treatment.

While previous studies have proposed SAE as a primary therapy for relatively young, healthy patients, ours is the first investigation to assess SAE as a therapy in a group composed exclusively of elderly, non-operative candidates with significant comorbidities.

Results of our research generally correspond to data from other sources. Despite the small number of patients, which limits the possibility of statistical processing, our preliminary experience confirms the feasibility, effectiveness and safety of selective arterial embolization for lower urinary tract symptoms due to BPH in high-risk patients.

Continued investigation of SAE in patients, especially as compared to control therapies such as TURP and medical therapy, will be necessary to definitively evaluate embolization as a therapeutic option for severe LUTS due to BPH.

Conclusion

The obtained results testify that selective arterial embolization is efficient for patients who have contraindications to traditional operations. We received good results in the treatment of lower urinary

tract symptoms in high-risk patients with benign prostatic hyperplasia without serious complications and other side effects, including reduction of the volume of the prostate by 35%, increase of maximal urinary flow rate by 32%, improvement of the mean IPSS score by 12 points and QoL level by 3.2 points.

Thereby, application of selective arterial embolization significantly expands possibilities in the selection of treatment for high-risk patients with symptomatic BPH, and consequently, helps to improve results of treatment of this disease in every particular case, and, in future, will improve provision of urological assistance in Ukraine. Nevertheless, obtained results must be confirmed on a larger group of patients and compared with other methods of treatment (medical therapy and transurethral resection of the prostate).

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Реферати

ЗАСТОСУВАННЯ СЕЛЕКТИВНОЇ АРТЕРІАЛЬНОЇ ЕМБОЛІЗАЦІЇ ДЛЯ ЛІКУВАННЯ ДОБРОЯКІСНОЇ ПРОСТАТИЧНОЇ ГІПЕРПЛАЗІЇ У ПАЦІЄНТІВ З ВИСОКИМ ОПЕРАЦІЙНИМ РИЗИКОМ

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Вибір методу лікування доброякісної гіперплазії передміхурової залози (ДГПЗ) у хворих похилого віку з високим ступенем операційного ризику є актуальною проблемою сучасної урології. Селективна артеріальна емболізація (САЕ) простати – новий метод лікування симптомів нижніх сечовивідних шляхів спричинених доброякісною гіперплазією передміхурової залози. У статті представлено попередній досвід виконання цього оперативного втручання у групі з 21 хворого з високим операційним ризиком, описані показання, критерії вибору хворих, методика оперативного втручання, результати та перспективи застосування даного методу у клінічній практиці.

Ключові слова: доброякісна гіперплазія передміхурової залози, селективна артеріальна емболізація

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ПРИМЕНЕНИЕ СЕЛЕКТИВНОЙ АРТЕРИАЛЬНОЙ ЭМБОЛИЗАЦИИ ДЛЯ ЛЕЧЕНИЯ ДОБРОКАЧЕСТВЕННОЙ ГИПЕРПЛАЗИИ ПРЕДСТАТЕЛЬНОЙ ЖЕЛЕЗЫ У ПАЦИЕНТОВ С ВЫСОКИМ ОПЕРАЦИОННЫМ РИСКОМ

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Выбор метода лечения доброкачественной гиперплазии предстательной железы (ДГПЖ) у больных преклонного возраста с высокой степенью операционного риска является актуальной проблемой современной урологии. Селективная артериальная эмболизация (САЭ) простаты – новый метод лечения симптомов нижних мочевыводящих путей вызванных доброкачественной гиперплазией предстательной железы. В статье представлен предварительный опыт выполнения данного оперативного вмешательства в группе из 21 больного с высоким операционным риском. Описаны показания, критерии отбора больных, методика оперативного вмешательства, результаты и перспективы использования данного метода в клинической практике.

Ключевые слова: доброкачественная гиперплазия предстательной железы, селективная артериальная эмболизация

Рецензент Саричев Л.П.