

prove the theoretical knowledge and practical skills to improve on the diagnosis and prevention of infectious diseases in adults and children.

The work was submitted to international scientific conference «Innovative technologies in the higher and vocational training», Spain, August, 2-9, 2012, came to the editorial office on 05.06.2012.

#### NATURAL GEOMAGNETIC EFFECTS ON SOME PARAMETERS OF HOMEOSTASIS IN THE BODY HUMAN IN THE NORTH

Prokopiev M.N.

*Surgut State University, Surgut,  
e-mail: mik-prokopev@yandex.ru*

It is well known that geomagnetic storms cause nonspecific adaptive stress response in the human body in the form of homeostatic changes in the parameters of the basic physiological systems. The present study is devoted to search for possible patterns of interactions studied with long term observations of patients and healthy individuals. An analysis of morbidity and nosological structure of the seasons in those of working age living in the northern city of Surgut, and sought medical help for five years. Status of resistance of the organism was assessed by clinical and immunological blood tests: a monthly average of lymphocytes (in %) in peripheral blood and immunoglobulin M, G, A (in g/l) in samples of blood serum of healthy people (control group) and patients. Parallel index of geomagnetic activity has been studied over the same five-year period. To determine the closeness and authenticity of the relationship between incidence of disease and the state of the geomagnetic activity used Spearman's rank correlation test (rs).

Analysis of the average frequency of referral of patients for medical care revealed two peaks in March-April and October-November, with lows in July and August. High frequency of spring and autumn uptake was detected in a longer average period of geomagnetic activity. The minimum number of hits identified in the most «magnetically» summer period (July-August). Correlation analysis showed, first, a high reliable direct link between the seasonal incidence and geomagnetic activity ( $rs = 0,804$ ;  $P = 0,002$ ), and, secondly, that the state of geomagnetic activity in the human environment may play a role in triggering seasonal raising the level of morbidity.

During the disease process depends on the activity of the immune system, so has been studied the relationship between the monthly average content of lymphocytes and immunoglobulins in the peripheral blood of patients and the observed state of the geomagnetic activity. It was revealed that the activation of the immune system observed in the periods of geomagnetic activity. Correlation analysis demonstrated a significant direct relationship

to the monthly average geomagnetic activity level in peripheral blood lymphocytes of surveyed men ( $rs = 0,587$ ;  $P = 0,046$ ), and immunoglobulin levels ( $rs = 0,913$ ;  $P = 0,001$ ).

The study showed that during periods of geomagnetic activity (long-term multi-year analysis) observed certain patterns of interaction with the environment inside the body, causing a condition of instability of the biological systems in the spring and autumn, and promoting the development of acute and worsening of chronic diseases in humans, that must be considered when developing regional prevention programs.

The work is submitted to the Scientific International Conference «New technologies, innovation, invention», Turkey (Antalia), August, 16-23, 2012, came to the editorial office on 21.06.2012.

#### PHARMACOLOGICAL ANALYSIS OF TACTICS OF OPERATIVE TREATMENT OF AN INNOCENT HYPERPLASIA OF PROSTATE

<sup>1</sup>Sevryukov F.A., <sup>2</sup>Kalininskaya A.A.

*<sup>1</sup>NGHCI of Road clinical hospital on the station Gorkiy  
JSC Russian Railways, N. Novgorod, Educational  
Institution of Higher Professional Education of the  
Ministry of Social Healthcare development of Russia;  
<sup>2</sup>Federal State Budget University of the Center of  
Scientific Research of the Ministry of Social Healthcare  
development of Russia, e-mail: AKalininskaya@yandex.ru*

In case of presence of evidence for operative treatment of an IHP, transurethral resection of prostate (TRP) is considered to be a «golden standard» for the standard volume of prostate up to 80 cm<sup>3</sup>.

Our objective was to define the applicability of alternatives for unipolar TRP (UTRP), specifically, bipolar transurethral resection and transurethral bipolar plasmatic vaporization of prostate for a small volume of prostate.

Comparative analysis of the results of unipolar and bipolar transurethral resection for an average volume of prostate shows the advantage of BTRP in the majority of significant indicators (complication frequency, bed fund work indicators), insignificantly less time of operation was the only advantage of UTRP.

Totally 167 patients with prostate volume of up to 80 cm<sup>3</sup> were studied within the research.

Open surgery – adenomectomy was implemented for patients with a prostate of bigger volume. Transurethral enucleation of prostate with bipolar loop – Trans Urethral Enucleation with Bipolar (TUEB) is an alternative method of choice. We have carried out an analysis of its clinical advantages (minimal blood loss during an operation, short period of placement urethral catheter in urinary tracts (24-72 hours), lack of traumatic cut of the front abdominal wall and urinary bladder, quick normalization of urine composition, short recovery and restoration of workability of patients [6, 7]) and economic effect for persons of capable and incapa-

ble age. Selection volume equaled: 122 patients for the method of transurethral enucleation and 122 patients for the method of adenectomy.

Economic efficiency is a result of the achieved positive medical and social effect. A decrease in morbidity with temporal loss of workability (TLW) cuts down economic losses and thus defines an economic effect. An effect (E) is a difference between economic losses (damage) (ED) in a basis period or within basis conditions (Bc) and losses in a given (calculative) period or in real conditions (Rc).

$$ED = Bc - Rc.$$

Calculation of economic effect of improving quality of preservation and opportune qualitative treatment of men based on defining decrease in economic losses (damage) of a country as a result of decrease in morbidity with TLW. According to the method, suggested by E.N. Kulagina in 1995, 1998, 2001, a damage is calculated by formula:

$$DAMAGE = [(D \cdot Tk) + (B \cdot Tk) + (L \cdot Tk)] \cdot P,$$

where  $D$  is GDP, produced in average per one working person per one business day;  $B$  is an aver-

age sum of benefits for temporal disability from the funds of social insurance for one day of temporal disability;  $L$  is treatment costs per one patient (stationary, ambulatory, and other kinds of medical help) from the budget funds and funds of Obligatory Medical Insurance, calculated per 1 calendar day of TLW;  $Tk$  is the duration of temporal disability per one working person in calendar days;  $P$  is a number of patients among workers of an economy.

Tariffs of medical services for grown population in accordance with N. Novgorod programme of obligatory medical insurance in 2011. Costs are presented in rubles. All numeral data represent average values.

1. Economic effect of using bipolar vaporization before BTRP under prostate adenoma up to 40 cm<sup>3</sup>.

Hierarchic cluster analysis of the duration of post-surgery period (bed-days after a surgery) was used as a clinical component of the research.

Economic damage was defined for bipolar vaporization and BTRP for persons of capable and incapable age (Table 1).

Table 1

Economic damage with usage of bipolar vaporization and BTRP for persons of capable and incapable age, rubles.

		Costs	Bipolar vaporization	BTRP
		Capable age	Incapable age	<b>Bed/day</b>
Cost of b/d	3941,326			5055,179
General study	610,05			610,05
Special study	1820,4			1820,4
Treatment	21000			26500
<b>Total</b>	<b>27371,776</b>			<b>33985,629</b>
Ed of TD	5797,38		7435,77	
<b>Total</b>	<b>33169,16</b>	<b>41421,4</b>		

EDofTDfor2011underimplementationofbipolar vaporization =  $[(806,5 + 453,8) \cdot 4,6] = 5797,4$  rubles. Total costs under stationary treatment and implementation of BTRP equaled 27371,8 rubles for the unemployed and 33169,2 for the employed.

Economic effect (a difference between total damages of BTRP and bipolar vaporization for incapable age equaled 6613,9 rubles, and for capable age it equaled 8252,2 rubles.

2. Economic effect of implementation of unipolar and bipolar transurethral resection.

Economic damage was also calculates for persons of capable and incapable age (Table 2).

ED of TD in 2011 under implementation BTRP =  $[(806,5 + 453,8) \cdot 6,4] = 8065,92$  rubles. Total costs of under stationary treatment and implementation of BTRP equaled 34414 rubles for the unemployed and 42480 for the employed.

Ed of TD in 2011 under implementation of UTRP =  $[(806,5 + 453,8) \cdot 7,8] = 9830,3$  rubles. For UTRP total costs equaled 35113,6 rubles for the unemployed and 44943,9 for the employed.

For incapable age economic effect (difference between total costs for using MTRP and UTRP) equaled 699,5 rubles, for persons of capable age it equaled 2464 rubles.

3. Economic effect of using bipolar vaporization before BTRP.

Economic effect of using TUEB before open adenectomy was calculated as a difference of economic damage (Table 3).

ED of TD for 2011 under implementation of TUEB =  $[(806,5 + 453,8) \cdot 5,6] = 7057,7$  rubles. Total costs under stationary treatment and using TUEB equaled 37288,6 rubles for the unemployed and 44286,3 rubles for the employed.

Table 2

Economic damage under implementation of BTRP and UTRP for persons of capable and incapable age, rubles

Capable age	Incapable age	Costs	BTRP	UTRP
		<b>Bed/day</b>	<b>6,4</b>	<b>7,8</b>
		Cost of b/d	5483,584	6683,118
		General study	610,05	610,05
		Special study	1820,4	1820,4
		Treatment	26500	26000
	<b>Total</b>	<b>34414,034</b>	<b>35113,568</b>	
Ed of TD			9830,34	
<b>Total</b>			<b>44943,91</b>	

Table 3

Economic damage under implementation of TUEB and open edanomectomy for persons of capable and incapable age, rubles

Capable age	Incapable age	Costs	TUEB	Open adenomectomy
		<b>Bed/day</b>	<b>5,6</b>	<b>13,7</b>
		Cost of b/d	4798,136	11738,297
		General study	610,05	610,05
		Special study	1820,4	1820,4
		Treatment	30000	13000
	<b>Total</b>	<b>37228,586</b>	<b>27168,747</b>	
Ed of TD			17266,11	
<b>Total</b>			<b>44434,86</b>	

Ed of TD in 2011 under implementation of open adenomectomy =  $[(806,5 + 453,8) \cdot 13,7] = 17266,11$  rubles. For open adenomectomy total costs equaled 27168,7 rubles for the unemployed and 44434,9 for the employed.

For persons of incapable age we have revealed a negative economic effect (difference between total losses of implementation of open adenomectomy and TUEB), that equaled 10059,8 rubles. For persons of incapable age economic effect was practically equal to 148,6 rubles.

Thus, the economic effect has confirmed implementation of bipolar vaporization for adenoma of small size (up to 40 cm<sup>3</sup>) and BTRP for adenoma of average size (40-80 cm<sup>3</sup>).

Regardless of negative economic effect of treating adenoma of bigger size (over 80 cm<sup>3</sup>) under implementation of TUEB for persons of elderly age and equal economic effect for employed men, implementation of this very method is reasonable due to its expressed positive medical-social efficiency (based on clinical component).

It is necessary to evaluate not only clinical efficiency and safety, but also the economic component of cure while selecting treatment tactics in modern terms. Choosing tactics of operative treatment un-

der innocent hyperplasia of prostate is generally defined by the volume of a prostate itself. Economic effect was calculated for persons of capable and incapable age. We have defined an economic effect of implementation of bipolar vaporization for adenoma of small size, BTRP for adenoma of average size, and, within complex evaluation of medical-social efficiency and economic effect, for adenoma of bigger size – implementation of TUEB.

**References**

1. Izmailov R.I. Optimization of treating patients with innocent hyperplasia of prostate of bigger size: author's abstract of dissertation, candidate of medical science. – Saratov, 2010.
2. Lopatkin N.A. Urology: clinical recommendations. – Moscow, 2007. – 352 p.
3. Zhdanova S.N. Methodical problems of defining economic efficiency of using new medical equipment and/or new medical preparation // Dissertation for candidate of economic science. – Moscow, 2003. – 150 p.

The work is submitted to the Scientific International Conference «Research on the priority of higher education on-directions of science and technology», on board the cruise ship MSC Musica, Italy-Greece-Croatia-Italy, June, 10-17, 2012, came to the editorial office on 17.05.2012.