STUDY OF THE ECOnOMIC EFFICACY OF PROJECTS FOR DIGITAL TRANSFORMATION OF THE BP MONITORING MODEL

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Objective: to investigate the economic efficiency of business models for a project for BP monitoring in patients with hypertension in the context of digital transformation of medical services.


Results: We studied two business models - implemented in commercial medicine and in a budgetary healthcare institution. In the models is the patient service scheme (supplying it with a certified tonometer with a built-in GSM or Bluetooth module - measuring BP - transmitting encrypted data to the remote monitoring center - storing it in a cloud database and the patient's electronic medical record - monitoring BP indicators - doctor's response to critical deviations in measurement results — patient feedback through the messenger). The difference in models is related to the sources and form of payment. In a private clinic, it is possible to use the patient's personal funds, voluntary medical insurance schemes, compulsory medical insurance (CMI), in a budgetary healthcare institution - payment at the CMI rate. The considered options turned out to be cost-effective (NPV> 0) with a discounted payback period from 2.8 (option 1) to 3.35 years (option 2). In case of state insurance system the time for launching a project is lengthened due to the agreeing period on the telemonitoring tariff, the methods of stimulating the medical personnel participating in the RMBP are different. The sensitivity analysis showed that the most critical factor is the tariff level for the service (the acceptable range is 4.84-8.81 euros for the telemedicine component), investments vary in the range from 225988.7 to 293785.3 euros. IRR of the project - 38% -45%, PI -1.6-1.75. 

Conclusions: the use of telemedicine technologies is economically feasible in both commercial and budgetary institutions. An increase in the project's efficiency indicators is possible due to the coverage of large regions. The accumulation and analysis of big data as a result of monitoring will create conditions for the chronopharmacology of antihypertensive drugs.

ABSTRACTS

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OBSTRUCTIVE SLEEP APNEA SYNDROME AS CARDIOVASCULAR RISK FACTOR ASSOCIATED WITH HYPERURICEMIA

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Objective: To assess the relationship between OSAS and uric acid levels. 

Design and method: 54 patients with BMI of more than 30 kg/m2, mean age 44.8±11.4 years, men 14 and women 40 were examined. All patients underwent polysomnography with registration of apnea/hypopnea index (AHI) and mean saturation (SpO2m) and were evaluate for uric acid levels in the blood. 

Results: Patients were divided into 2 groups depending on AHI: 1) gr_1 (n = 33) with AHI <15/hour, which corresponds to the norm and mild OSAS; gr_2 (n = 21) with AHI ≥15 /hour, which corresponds to the middle-severe OSAS. In patients gr_1 AHI 4.1/hour ± 3.7 and in patients gr_2 - 50.5/hour ± 31.1, respectively. BMI was not associated with AHI. The level of uric acid was significantly higher in gr_2 - 481 ± 81 μmol/L than in gr_1 - 390 ± 84 μmol/L (p <0.001). In addition, a correlation was found between the level of SpO2m and uric acid (p <0.01). 

Conclusions: Hyperuricemia is an independent risk factor for hypertension and cardiovascular events.

DYNAMICS OF INDICES OF LEFT VENTRICULAR-ARTERIAL COUPLING IN PATIENTS WITH HYPERTENSION AFTER ACUTE MYOCARDIAL INFARCTION

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Objective: to study the dynamics of left ventricular-arterial coupling (LVAc) indices in patients with arterial hypertension (AH) after STEMI, depending on the presence or absence of rapidly progressing left ventricular (LV) remodeling.

Design and method: The study included 71 patients (mean age 51.4 ± 8.4 years) with hypertension after STEMI. Echocardiography was performed at the 7-9th day and 24th, 48th weeks after STEMI (MyLab, ESAOTE, Italy) with the determination of EDVI, its index (EDVI/A) and calculation of LVAc indices: arterial elastance (Ea), LV elastance (Ees), LV index (Ea/Ees). All patients received STEMI treatment for 48 weeks.

Results: according to the EDVI dynamic during the 24 weeks, the patients were divided into two groups: group 1 - 30 people with rapidly progressive LV remodeling (increase in the EDVI>20%); group 2 - 41 people without LV remodeling (EDVI dynamics <20%). The following dynamics of LVAc indices was revealed: in group 1 Ea initially was 2.05[95%CI 1.8;2.2], after 24 weeks - 1.6 [95%CI 1.4;1.8] (p=0.0008), 48 weeks - 1.5 [95%CI 1.4;2.1] (p=0.007); in group 2, respectively, 1.5[95%CI 1.2;2.1], 1.5[95%CI 1.2;2.0] (p=0.46), 1.6[95%CI 1.7;1.9] (p=0.27). Ees in the 1st group initially 1.85[95%CI 1.4;2.3], after 24 weeks - 1.2 [95%CI 0.9;1.6] (p=0.0002), 48 weeks - 1.35[95%CI 1.1;1.6] (p=0.001); in group 2 - 2.05[95%CI 1.9;2.2], 2.25[95%CI 2.0;2.4] (p=0.08), 2.35[95%CI 2.1;2.5] (p=0.09). In the 1st group the Ea/Ees index initially corresponded to normal values: 1.2[95%CI 1.0;1.4], followed by an increase after 24 weeks to 1.4 [95%CI 1.1, 1.6] (p = 0.007) and after 48 weeks - 1.49[95%CI 1.2;1.7] (p=0.002). In the 2nd group, a decrease of Ea/Ees was revealed: initially - 1.09[95%CI 0.9;1.1], after 24 weeks - 0.9[95%CI 0.8;0.9] (p=0.02), 48 weeks - 0.85[95%CI 0.7;0.9] (p=0.002).

Conclusions: in the group of patients, against the background of the development of rapidly progressive LV remodeling after STEMI in combination with hypertension, a pathological increase in the LVAc index was revealed due to a more pronounced decrease in left ventricular elastance, which reflects impaired homeostasis of the cardiovascular system.