PERINATAL OUTCOMES IN PRETERM PREMATURE RUPTURE OF MEMBRANES

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Introduction. Preterm premature rupture of membranes (PPROM) is one of the leading causes of perinatal morbidity and mortality. Intrauterine continuous amnioinfusion via a subcutaneously implanted port system for PPROM is an attempt to improve the perinatal outcomes.

Methods. The 27 pregnant women with PPROM at 24-31+6 weeks and severe oligohydramnios and their newborns were examined. They were divided in 2 groups: 14 patients (basic group) were randomly assigned to management with transabdominal continuous amnioinfusion and 13 patients (control group) - to expectant management according to clinical protocols.

Results. The pregnancy in the basic group was prolonged to 46.8 ± 6.1 days vs. 19.2 ± 2.5 days in control group. There were no significant differences in weight of newborns (1199.9±91.4gramms – in basic group and 1046.5±82.1gramms on control group). At the same time, the perinatal mortality in basic group (214.3‰) was 2.1 times lower than in control group (461.5‰).

The perinatal morbidity was 183.4 ‰ in basic group while in control group - 377.8‰. Congenital pneumonia took the first place among all diseases (58.33% - in basic group and 66.7% - in control group. Despite carrying antenatal prophylaxis of respiratory distress syndrome (RDS), this pathology has been realized in the newborns of control group in 88.9% of cases, and in the basic - more than 2 times less (41.7%).

Newborns of the control group needed in mechanical ventilation with the use of high concentrations of oxygen. It was resulted in intraventricular hemorrhage and retinopathy of prematurity in 11.1% of cases. There were no intraventricular hemorrhage in basic group.

Conclusions. Intrauterine long-term amnioinfusion via a subcutaneously implanted port system for PPROM helps to reduce perinatal mortality and morbidity.

ONCOFINDER, A FAMILY OF NEW TOOLS FOR THE ANALYSIS OF COMPLEX INTRACELLULAR SIGNALING NETWORKS AND ITS APPLICATIONS TO BIOMEDICINE, DRUG DISCOVERY AND PRACTICAL ANTICANCER THERAPY

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Introduction. Analysis of the complete transcriptomes is complicated by the problems with understanding of the overall functional features basing on the observed large-scale gene expression profiles.

Methods. We propose a new biomathematical method, OncoFinder, which for the first time enables performing both quantitative and qualitative analysis of the intracellular signaling pathway activation (SPA).

Results. This method is universal and may be used for the analysis of any physiological, stress, malignancy and other user-defined conditions at the molecular level. In contrast to other techniques, OncoFinder utilizes an algorithm that distinguishes the activator/repressor role of every gene product in each pathway. This unique feature enables to quantitatively characterize activation of each signaling pathway in a given biosample. We show that the relative importance of each gene product in a pathway can be assessed using kinetic models for "low-level" protein interactions. To facilitate using OncoFinder platform by the biomedical society, we created a software package available freely for the academic community.

Conclusions. OncoFinder technique showed a strong potential to neutralize differences between the experimental data obtained using NGS and microarray hybridization, using most of the commercially available platforms. This approach also allowed us to characterize new SPA signatures as the better markers of cancer progression compared to the individual gene products. OncoFinder also enables to correlate SPA with the success of anticancer therapy of the individual patients.

POSSIBILITY OF GENETIC SCREENING OF CERVICAL, ESOPHAGEAL, AND COLORECTAL CANCERS IN POPULATION FROM ALMATY, KAZAKHSTAN

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Keywords: cervical cancer, esophageal cancer, colorectal cancer, genetic susceptibility, genetic markers, polymorphism.

Introduction. The cancer incidence in Kazakhstan is higher than in the European region and one of the highest among the Central Asian countries. The frequencies of some cancer types (esophageal, colorectal and cervical) grow each year in Kazakhstan. These cancer types have been selected in our study because of their high morbidity and mortality in Kazakhstan.

Here we present the results of study of healthy individuals and patients with esophageal (EC), cervical (CC) and colorectal (CRC) cancers.

Methods. The biosamples were collected from the patients (100 - EC, 217 - CC, and 249 - CRC) of Almaty oncology center. The control groups of healthy individuals were selected in accordance to the data of cancer patients (115 – EC, 160 – CC, and 169 - CRC). The variations of PCR and direct sequencing were used for the genotyping of candidate polymorphisms and hot spot regions of key cancer genes.

Results. There were 32 patients with early CRC onset (28-50 yrs). We suggest a possible