Перспективи подальших досліджень

Вивчити особливості нейрофізіологічних процесів в гангліозних клітинах сітківки в пацієнтів з первинною відкритокутовою глаукомою.

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ANTENATAL AND GENEALOGICAL RISK FACTORS FOR BRONCHOPULMONARY DYSPLASIA AND DYSPLASTIC DEPENDENT PATHOLOGY OF BRONCHOPULMONARY SYSTEM IN CHILDREN

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АНТЕНАТАЛЬНІ ТА ГЕНЕАЛОГІЧНІ ФАКТОРИ РИЗИКУ БРОНХОЛЕГЕНЕВОЇ ДИСПЛАЗІЇ ТА ДИСПЛАСТИКОЗАЛЕЖНОЇ ПАТОЛОГІЇ БРОНХОЛЕГЕНЕВОЇ СИСТЕМИ У ДІТЕЙ

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АНТЕНАТАЛЬНЫЕ И ГЕНЕАЛОГИЧЕСКИЕ ФАКТОРЫ РИСКА БРОНХОЛЁГОЧНОЙ ДИСПЛАЗИИ И ДИСПЛАСТИКОЗАВИСИМОЙ ПАТОЛОГИИ БРОНХОЛЁГОЧНОЙ СИСТЕМЫ У ДЕТЕЙ

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Abstract. The incidence of certain risk factors for bronchopulmonary dysplasia and dysplastic dependent pathology of bronchopulmonary system was studied and their informative and prognostic values were determined. Such factors as complicated pregnancy course, maternal age at childbirth, previous termination of pregnancy were proven to be the most significant. Dysembryogenic stigmas from previous pregnancies in children as well as manifestations of gestosis were found to be informative regarding the formation of dysplastic dependent pathology in case of the birth of a premature baby or a baby with low birth weight. According to studied factors their pathometric and sanological values were calculated making it possible to include these factors to the structure of regional prevention programs in the future.

Keywords: social medicine; children's health; regional specific features; bronchopulmonary system; prognosis.

Резюме. Вивчена частота окремих факторів ризику бронхолегеневої дисплазії і диспластикозалежної патології бронхолегеневої системи та визначені їх інформативність і прогностичне значення. Доведена найбільша значимість таких факторів, як ускладнений перебіг вагітності, вік матері на момент народження дитини, наявність переривань попередніх вагітностей. З'ясовано, що наявність у дітей від попередніх вагітностей стигм дисембріогенезу, а також наявність проявів гестозу можуть бути інформативними стосовно формування ДЗП у разі народження недоношеної дитини чи дитини з низькою масою тіла. 3. За вивченими факторами розраховано

їх патометричне та санометричне значення, що дозволить в подальшому включити ці фактори до структури регіональних програм профілактики.

Ключові слова: соціальна медицина, здоров'я дитячого населення, регіональні особливості, бронхолегенева система, прогнозування.

Резюме. Изучена частота отдельных факторов риска бронхолёгочной дисплазии и диспластикозависимой патологии бронхолегочной; определены их информативность, прогностическое значение. Доказана наибольшая значимость таких факторов, как осложнённое течение беременности, возраст матери на момент родов, наличие в анамнезе прерываний предыдущих беременностей. Установлено, что наличие у детей от предыдущих беременностей стигм дисембриогенеза, а также наличие проявлений гестоза могут быть информативными относительно формирования диспластикозависимой патологии бронхолёгочной системы при рождении недоношенного ребёнка с низкой массой тела. По изученным факторам расчитано их патометрическое и санометрическое значение, что в последующем позволит включить эти факторы в структуру региональных програм профилактики.

Ключевые слова: социальная медицина, здоровье детского населения, региональные особенности, бронхолёгочная система, прогнозирование.

Problem statement and analysis of the recent research. Problematic issues of modern preventive and social medicine include comprehensive consideration of possible risk factors for bronchopulmonary dysplasia (BPD) and dysplastic dependent pathology (DDP) of bronchopulmonary system (BPS) in children in order to develop the strategy and tactics of the possible prevention of these diseases [1, 3-5]. The complexity of the problem consists in the fact that the development and accumulation of knowledge regarding pathogenic aspects of these diseases makes actual the need to develop and improve medical and organizational support and adaptation (additional organization) of existing models of assistance to families, women, newborns, children of older age [6, 9-11].

BPD is known to be a polyetiologic disease with symbiosis of trigger and hereditary, contributing factors as well as environmental factors [1, 3-5]. It is not improbable that the respiratory tract damages, beginning with the neonatal period, affect lung ontogenesis and determine disease consequence under certain conditions [6, 7]. Therefore, the study of current BPD in terms of ongoing lung ontogenesis is important to prevent the adverse effects of the disease, in particular regarding DDP of BPS in older age [8, 9].

The issue of specific antenatal and genealogical factors impact on BPD and DDP BPS risk remains unclear [5, 6, 10, 11]. Hence, the study of the incidence and prognostic significance of these factors is important.

The objective of the research was to study the incidence and prognostic values of antenatal and genealogical risk factors for bronchopulmonary dysplasia and dysplastic dependent pathology of bronchopulmonary system in children.

Materials and methods of the research

Comprehensive set of antenatal and genealogical risk factors for BPD and DDP of BPS were studied by a comparative analysis of their incidence in groups of children (252 individuals with BPD, 252 individuals without BPD) followed by the determination of informative and prognostic values of each of these factors regarding their use in the system of population assessment of their (children's) health. Patient-specific analysis of the factors was conducted in 116 children with BPD and 136 children with DDP of BPS in two administrative regions of Ukraine (SPG_1 – the first stratified population group), 252 healthy children (SPG_2 – the second stratified population group). Specifically composed expert judgment card filled for each child and including data on BPD or DDP of BPS was used in the studies of antenatal and genealogical factors in the group of healthy individuals and in the group of patients. Information on the studied factors copied from other original medical records was also used. Incidence, prognostic coefficients and informative value of specific factors were determined (using mathematical tool of analysis of variance) for each of the investigated 20 factors in their comparative analysis in specially formed groups of children in marker districts of Dnipropetrovsk and Kharkiv regions. Frequency distribution of each factor gradation was used in the medical and statistical analysis (one-way ANOVA test). Factors informative value (I, bit) and action force (η^2, %) as well as probability of mean value difference were calculated [2].

Results of the research and their discussion

The study of complicated pregnancy course (X_{31}) incidence detected that complicated pregnancy course occurred significantly more often in mothers of children with DDP (SPG_1) in comparison with experimental group (SPG_2) ((88.9±2.0) % and (50.4±3.1) % respectively, $p<0.0001$). Specific gravity among healthy children was significantly higher in those whose mothers did not have any complications during pregnancy ((SPG_1 – (11.1±2.0) %, SPG_2 – (49.6±3.1) %, $p<0.001$). Action force of this factor constituted η^2=17.0% and its total informative value composed 1.725 bit. Consequently, pathometric value of the factor constituted $^{31}PC_p$ = +2.4 pat, sanological value was $^{31}PC_s$ = -6.5 pat.

Such factor as (X_{32}) maternal age at childbirth was also analyzed. It was found that children with DDP were mainly born by mothers under 19 (SPG_1 – (16.3±2.3) %, SPG_2 – (4.4±1.3) % respectively, $p<0.01$) and over 40 (SPG_1 – (3.6±1.2) %, SPG_2 – (0.8±0.6) % respectively, $p<0.05$). Healthy children were born more often by mothers at the age of 20ч29 (SPG_1 – (46.4±3.1) %, SPG_2 – (75.4±2.7) %, $p<0.001$). Action force of maternal age on DDP incidence constituted η^2=9.0%, and its total informative value composed 0.907 bit. Consequently, maximum pathometric value of the factor is achieved at the age of over 40 and constituted $^{32}PC_p$ =+6.5 pat. Sanological value is achieved at the age of 20-29, and amounted $^{32}PC_s$ = -2.1 pat.

Such factor as (X_{33}) the incidence of previous termination of pregnancy was investigated. It was found that children with DDP were mainly born by mothers with termination of pregnancy in past medical history (SPG_1 – (66.3±3.0) %, SPG_2 – (42.1±3.1) % respectively, $p<0.001$) (Fig. 1.) Action force of this factor on DDP incidence constituted η^2=6.0%, and its total informative value composed 0.523 bit. Consequently, pathometric value of the factor constituted $^{33}PC_p$ =+2.0 pat, sanological value was $^{33}PC_s$ = -2.3 pat.

We took into account dysembryogenic stigmas (X_{34}) in children, namely highly arched palate, arachnodactyly, sandal gap deformity, auricles abnormalities, etc. Generally, at least one of these stigmas was observed significantly and almost three times more often in children with in DDP (SPG_1 – (24.3±2.7) %, SPG_2 – (7.5±1.7) % respectively, $p<0.001$). Action force of this factor on DDP incidence constituted η^2=5.0%, and its total informative value was 0.456 bit. Consequently, pathometric value of the factor constituted $^{34}PC_p$ =+4.9 pat, sanological value was $^{34}PC_s$ = -0.8 pat.

Early and/or late gestosis (X_{35}) was significantly more often registered among mothers of children with DDP (SPG_1 – (71.9±2.9) %, SPG_2 – (49.6±3.1) % respectively, $p<0.001$). Action force of this factor on DDP incidence constituted η^2=5.0%, and its total informative value was 0.425 bit. Consequently, pathometric value of the factor constituted $^{35}PC_p$ =+1.6 pat, sanological value amounted $^{35}PC_s$ = -2.4 pat. It should be mentioned that early gestosis signs were noted in 165 individuals out of 179 mothers of children with DDP. Late gestosis signs were

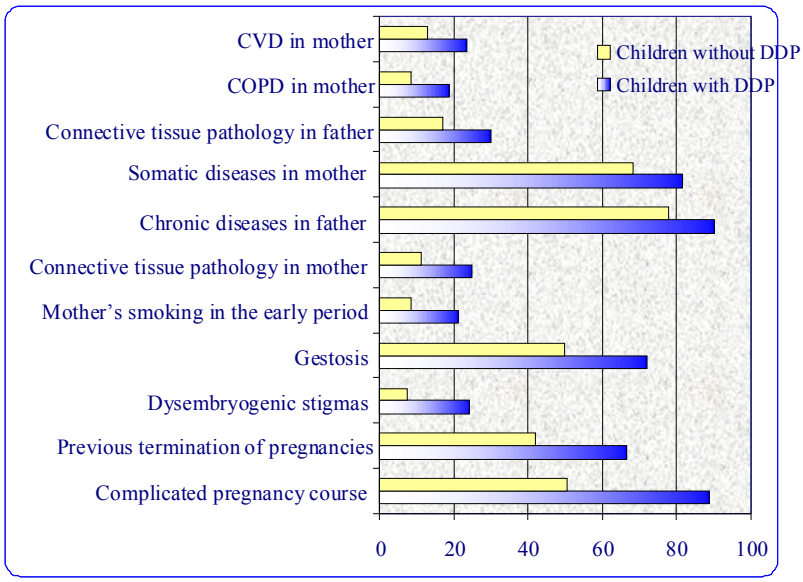

Fig. 1. Incidence (%) of some significant (at p<0.05) biomedical and phenotypically genealogical factors among children of stratified population groups

observed in 132 mothers ((92.2±2.0) % and (73.7±3.3) % respectively). Whereas in the experimental group (125 mothers) late gestosis signs were observed significantly more rarely (early gestosis was noted in (63.2±4.3) % of cases, late gestosis was detected in (38.4±4.4) % of cases). Thus, gestosis signs were noted in mothers of children with DDP more often and their severity was more long-lasting.

Comparison groups differed by a history of mother's smoking in the early period (X_{35}). Particularly, mother's smoking was noted in (21.0±2.6) % of cases in the group of children with DDP, SPG_2 constituted (8.3±1.7) %, ($p<0.01$). Action force of this factor on DDP incidence constituted $\eta^2=3.0\%$, and its total informative value was 0.296 bit. Consequently, pathometric value of the factor constituted $^{35}PC_p=+4.0$ pat, sanological value was $^{35}PC_s=-0.6$ pat.

Conclusions

1. The incidence of certain risk factors for bronchopulmonary dysplasia and dysplastic dependent pathology of bronchopulmonary system was studied studied and their informative and prognostic values were determined. Such factors as complicated pregnancy course, maternal age at childbirth, previous termination of pregnancy were proven to be the most significant.

2. Dysembryogenic stigmas from previous pregnancies in children as well as manifestations of gestosis were found to be informative regarding the formation of dysplastic dependent pathology in case of the birth of a premature baby or a baby with low birth weight.

3. According to studied factors their pathometric and sanological values were calculated making it possible to include these factors to the structure of regional prevention programs in the future.

Prospects for further research involve the development of standardized procedure of DDP risk assessment in children using prognostic algorithms of familial and genealogical factors assessment.

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