Здоровье ребёнка

Клінічна педіатрія / Clinical Pediatrics

UDC 616.37+613.955+616.314-085

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DENTAL HEALTH IN CHILDREN OF SENIOR SCHOOL AGE WITH FUNCTIONAL PATHOLOGY OF PANCREAS: interdisciplinary character of the problem

Summary. *60 children of senior school age with functional pathology of pancreas and 30 apparently healthy children of the same age were examined for the purpose of dental health assessment. Risk factors of development of lesion of pancreas were detected: irregular nutrition (41.7 %), burdened heredity (33.3 %), autonomic imbalance, in particular instability of vascular tone (13.3 %), massive helminth invasion (11.7 %). There were established the clinical peculiarities of lesions of the pancreas as well as signs of edema of the head of pancreas by data of sonographic method of examination. Factors of deterioration in the condition of oral cavity, teeth and periodontal tissue in the cohort of patients are: unsatisfactory hygiene of oral cavity (absence of a toothbrush, undurable and unthorough brushing of teeth and tongue, inability to use dental floss for removal of uneaten food from gingival sulcus and spaces between teeth), as well as rare visits to a dentist with the purpose of prevention and treatment (46.7 %).*
Key words: *adolescents, pancreas, pathology, oropharynx, examination, treatment.*

Introduction

Deterioration of somatic health of school-aged children against the background of high dental morbidity is a reflection of unsatisfactory social-economic situation in the country, as well as environmental deterioration, reduction in the quality and culture of nutrition in general [1–3].

Analysis of data as to correlation of dental pathology and diseases of the digestive system in all age groups that has been studied for a long time only showed common conditions of formation and stable tendency to growth [3–5].

In particular, chronic diseases of the gastrointestinal tract (stomach, liver, pancreas) are often accompanied by the deficiency of vitamins, minerals, proteins, carbohydrates in a body, the result of which is the development of inflammatory and dystrophic changes in the mucous membrane of the mouth cavity, dysfunction of masticatory apparatus. Caries, periodontal disease, dento-maxillary anomalies are more frequent in this category of patients [6, 7].

On the other hand pernicious habits (smoking), disharmonic physical development, bone mineralization disorder, against the background of exocrine pancreatic deficiency, rather often are accompanied by abnormal development of teeth and jaw [6, 7].

Herewith researchers discover the influence of practically invariable pathogenetic factors, in particular: poor quality of foodstuff, hereditary susceptibility to caries, reductive changes of masticatory apparatus etc. [1, 3, 4].

Thus, any somatic or dental pathology in childhood should be considered in the light of organ homeostasis, and development of therapeutic and preventive measures requires cooperation of a pediatrician and a dentist [1, 3, 4].

Objective of the research

To study peculiarities and condition of oral cavity of children with pancreas pathology.

Material and methods of research

We have examined 60 children of 15–17 years with sphincter of Oddi dysfunction, pancreatic variant,

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who were undergoing scheduled outpatient examination in Oblast Children's Advisory Clinic (OCAC) in the city of Ivano-Frankivsk.

30 apparently healthy children of the same age who were undergoing preventive examination in a dental room of a rural outpatient department of a hospital in the village of Bliudnyky (Halych district, Ivano-Frankivsk oblast) were a comparison group.

Verification of the diagnosis of functional pancreas pathology involved the application of Rome III criteria (Rome, 2006).

In the process of examination we also defined the criteria for exclusion of the diagnosis of functional pathology: the age under 5 and over 15 years old, the presence of abnormal development of biliary system and pancreas (pancreas divisum), signs of any organic disease of hepato-pancreato-duodenal area: melena, anemia, acceleration of erythrocyte sedimentation rate (ESR), unmotivated weight loss in a short period of time (week/month/six months).

Scope of examinations also involved: general clinical tests, determination of urine diastase activity, fecal elastase-I by ELISA method (Germany). Cholecystoscopy with a test cholagogic breakfast (2 raw egg yolks) was used to assess the functional status of gallbladder. All children were questioned for detection of risk factors of the biliary system diseases development (developed by us questionnaire included 120 questions).

Examination of the mouth cavity was made in a dental room of OCAC and a rural outpatient department of a hospital. It was conducted an assessment of the oral cavity health in general, complications of caries and consequences of dental prosthetics if necessary.

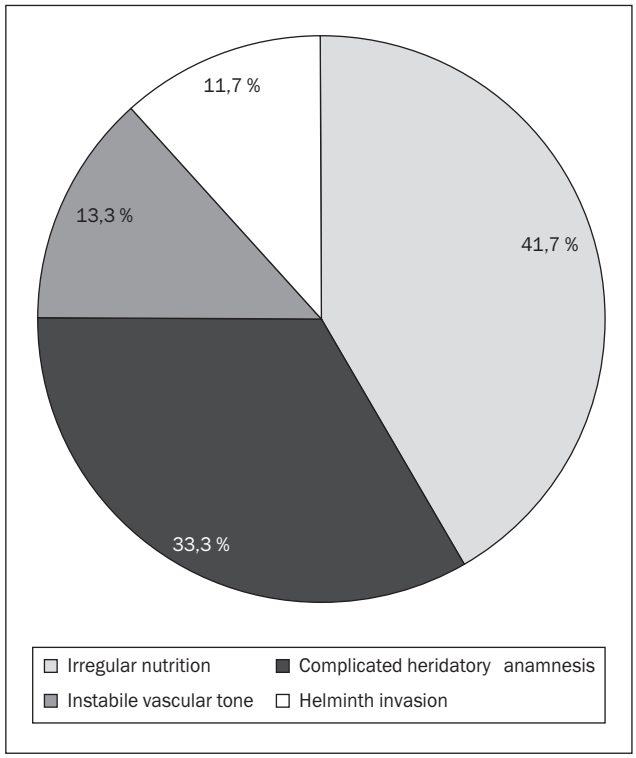

Figure 1. Main risk factors of development of functional pathology of pancreas of outpatients, n = 90

Results of the research and their discussion

By results of our research, considerable preference for an article (51.7 % and 48.3 %, $p < 0,05$) among the examined people was not found. The age of most examined people (70.0 %) was 12.0 ± 0.1 % years.

Duration of a functional disease of pancreas before the moment of the first reference to a gastroenterologist was up to 6.0 ± 0.1% months with following exacerbations of abdominal pain during the following 3.0 ± 0.1% months.

According to our observations, functional disorder of the sphincter of Oddi developed in teenagers with chronic cholecystitis (58.3 %) and chronic type C gastritis (41.7 %) more often.

According to data obtained by us, the following risk factors of development of functional pathology of pancreas: irregular nutrition (41.7 %), burdened heredity (33.3 %), autonomic imbalance, in particular instability of vascular tone (13.3 %), massive helminth infestation (11.7 %) (fig. 1).

In our opinion, out of the provided risk factors, irregular nutrition (big gaps between food consumption, lack of vitamins and microelements) serves as a determining factor in disturbance of coordination between organs of pancreatobiliary area, which leads to further development of functional pathology of pancreas.

In clinical picture of the sphincter of Oddi dysfunction, pancreatic variant, we noted the prevalence of abdominal pain syndrome with localization in the right hypochondrium (80.0 %), bitterness in the mouth cavity (70.0 %), induced duodeno-gastroesophageal reflex (fig. 2). Disorders of defecation were observed in 25.0 % of patients by a type of diarrhea.

In more than a half of the examined children of the treatment group (65.0 %), unlike the comparison group, activity of urine diastase was low, but higher than indices of healthy children (40.5 ± 0.1 and 32.0 ± 0.1 g/h * l, $p > 0.05$).

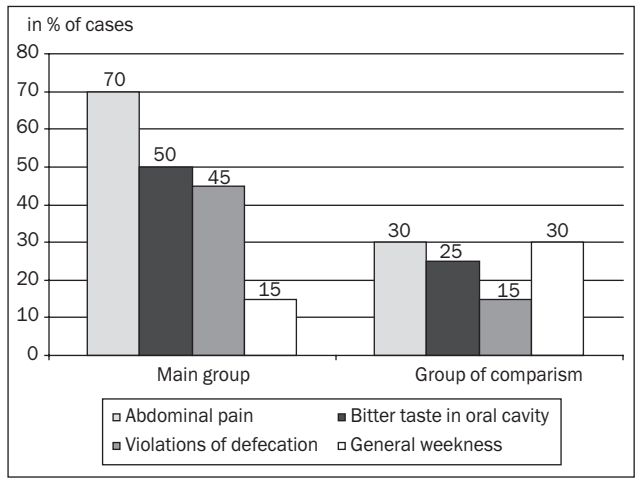

Figure 2. Clinical characteristic of patients with functional pathology of pancreas, n = 90

The level of fecal elastase-I in most patients of the treatment group was lower than indices of healthy children (165.0 ± 0.2 and 205.0 ± 0,2 mcg/g of feces, $p < 0.05$), while in healthy children of the same age and gender it did not differed considerably from the norm (191.0 ± 0.2 and 205.0 ± 0.2 mcg/g of feces, $p > 0.01$).

That is why we cannot talk about the presence of disorders of external secretory function of pancreas despite the involvement of the organ into the pathological process. This allows to create an algorithm to prevent serious lesion of pancreas by means of preventive measures.

Abdominal ultrasound with target examination of pancreas echo-structure showed only head edema, more rarely — tail of pancreas (60.0 % and 40.0 %, $p < 0.05$). Cholecystoscopy showed the presence of hypotonic and hyperkinetic type of gallbladder dysfunction (40.0 % and 20.0 %, $p < 0.05$).

Having conducted a comparative analysis of risk factors of development of pathologies of the pancreatobiliary area in school-aged children who were undergoing a scheduled examination in OCAC and in rural area, we noted higher percentage of helminth infestation in a cohort of children of rural areas as compared to patients of the advisory clinic (70.0 % and 35.0 %, $p < 0.05$). Herewith, discomfort in the left hypochondrium (63.3 % and 26.6 %, $p < 0.05$), signs of fatigue (33.3 % and 10.0 %, $p < 0.05$), defecation disorders (25 % and 6.7 %, $p < 0.05$) were noted more often in the children from rural areas than in patients of the advisory clinic.

Assessment of the dental health of all examined patients showed poor health of the oral cavity, due to bad awareness of parents and the teenagers themselves about care and hygiene.

After thorough anamnesis gathering, we found the following risk factors, which serve as determining ones for teeth and periodontium tissues lesion in the above cohort of patients (fig. 3).

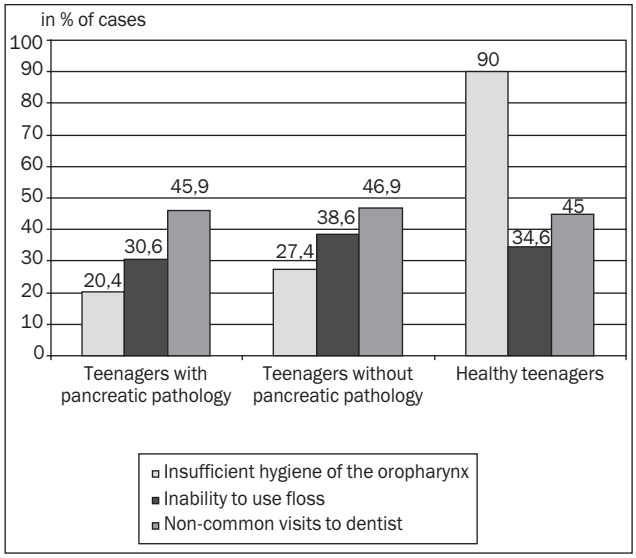

Figure 3. Reasons of bad hygiene in children with functional pathology of pancreas and in healthy children, n = 90

These factors include: poor hygiene of the mouth cavity (no change of a toothbrush, undurable and unthorough brushing of teeth and tongue, inability to use dental floss for removal of uneaten food from gingival sulcus and spaces between teeth). This factor percentage wise comes to the foreground. Further there attention should be paid to the frequency of visits paid to a dentist for prophylactic treatment and for treatment of surface caries changes (46.7 %).

There appears the concern as to the spread among teenagers of the habit to snack hastily with consumption of chips, dry bread crumbs and salad dressed with mayonnaise. The percentage of consumption of beer and low-alcohol beverages in the age group from 16 to 18 years (30.0 % and 15.0 %, $p < 0.05$) became higher as well. However, it should be mentioned that these factors were not determining in the development of gum and teeth pathology.

It was established high percentage of smokers among the examined by us teenagers (70.0 and 35 %, $p < 0.05$), and there was no gender or age-related difference between active smokers. Also the frequency of smoking children did not depend on a place of residence (65 and 50, $p > 0.01$).

Children diagnosed with high acidity of the stomach often had: dry lips (80 %), bad breath (75 %), hypersalivation (65 %), sour taste in mouth caused by an underlying disease (35 %). Among dental pathology in both groups of patients more frequent were: dental caries, in particular its uncompensated forms (75 %), recurrent stomatitis (68 %), more rarely — angular cheilitis (50 %).

It should be noted that for children with gallbladder dysfunction, higher frequency of gingivitis and catarrhal stomatitis (65 % and 35 %, $p < 0.05$) is typical; tongue papilla deformation is observed due to steady edema (45 %).

In active smokers the dirty grey plaque accumulation is observed more often than in teenagers without this pernicious habit (32 and 15, $p < 0.05$) as well as simple marginal gingivitis of medium-severe stage (15 and 5, $p < 0.05$).

Moreover, target examination of the oral cavity confirmed local disorder of temperature and trophism in places of lesions (10 %) which was manifested by local temperature reduction, blanching and thinning of the mucous membrane of the mouth cavity.

It should be noted that the detected changes served as a basis for patients' referral to consultation in Oblast Children's Dental Clinic — in 5 % of cases.

Children and their parents were informed about the need to establish healthy lifestyle skills, harmful influence of smoking and alcohol especially on the body state in puberty, as well as the need of early detection and treatment of diseases of the digestive organs.

A dentist read mini-lectures about how to choose a toothbrush and toothpaste correctly, as well as the appropriateness of the use of different personal hygiene

products for mouth cavity with consideration of age and paying capacity of population.

Parents who have young children also have been informed about an annual event called «Hospital for Baby Bears» that was established by medical students for broader involvement of children in proper mouth care from early childhood.

Since the age structure of population in the area has the tendency to grow, we almost did not include young children. However, it may be the objective of other prospective studies in this context in future.

Conclusions

1. The most frequent lesion of pancreas was observed in patients with chronic cholecystitis and chronic type C gastritis.

2. Considerable prevalence of any of the risk factors of pancreas pathology development and unsatisfactory mouth health status was not found, however further courses of diseases depend on their correct and timely assessment.

3. To the peculiarities of the clinical picture of the sphincter of Oddi dysfunction, pancreatic variant, belong: abdominal pain with localization in the right hypochondrium, bitterness in the mouth cavity, and disorders of defecation.

4. Surface caries, recurrent aphthous stomatitis and angular cheilitis were found in examined teenagers.

Practical guidelines

1. Detected changes of the oral cavity of children with chronic pathology of gastroduodenal and hepatobiliary area will allow make a correct diagnostic and therapeutic algorithm and prevent complications development.

2. In future the range of diagnostic search should be expanded at the expense of other age groups and other areas for deeper assessment and verification of data.

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Получено 20.10.15

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СТОМАТОЛОГИЧЕСКИЙ СТАТУС У ДЕТЕЙ СТАРШЕГО ШКОЛЬНОГО ВОЗРАСТА С ФУНКЦИОНАЛЬНОЙ ПАТОЛОГИЕЙ ПОДЖЕЛУДОЧНОЙ ЖЕЛЕЗЫ: междисциплинарный характер проблемы

Резюме. Было изучено состояние зубов у 60 детей старшего школьного возраста с функциональной патологией поджелудочной железы и 30 практически здоровых. Выявлены факторы риска заболеваний поджелудочной железы: нерегулярное питание (41,7 %), отягощенная наследственность (33,3 %), вегетативный дисбаланс, в частности нестабильность сосудистого тонуса (13,3 %), массивная глистная инвазия (11,7 %). Были установлены клинические особенности поражения поджелудочной железы, а также признаки отека головки поджелудочной железы по данным ультразвукового исследования. Факторы ухудшения состояния полости рта, зубов и тканей пародонта в когорте пациентов таковы: неудовлетворительная гигиена ротовой полости (отсутствие зубной щетки, недостаточно длительная и нетщательная чистка зубов и языка, невозможность использования зубной нити для удаления остатков пищи из десневой борозды и промежутков между зубами), а также редкие визиты к стоматологу с целью профилактики и лечения (46,7 %).

Ключевые слова: подростки, поджелудочная железа, патология, ротоглотка, обследование, лечение.

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СТОМАТОЛОГІЧНИЙ СТАТУС У ДІТЕЙ СТАРШОГО ШКІЛЬНОГО ВІКУ З ФУНКЦІОНАЛЬНОЮ ПАТОЛОГІЄЮ ПІДШЛУНКОВОЇ ЗАЛОЗИ: міждисциплінарний характер проблеми

Резюме. Було вивчено стан зубів у 60 дітей старшого шкільного віку з функціональною патологією підшлункової залози і 30 практично здорових. Виявлено фактори ризику захворювань підшлункової залози: нерегулярне харчування (41,7 %), обтяжена спадковість (33,3 %), вегетативний дисбаланс, зокрема нестабільність судинного тонусу (13,3 %), масивна глистова інвазія (11,7 %). Були встановлені клінічні особливості ураження підшлункової залози, а також ознаки набряку головки підшлункової залози за даними ультразвукового дослідження. Фактори погіршення стану порожнини рота, зубів і тканин пародонту в когорті пацієнтів такі: незадовільна гігієна ротової порожнини (відсутність зубної щітки, недостатньо тривале і неретельне чищення зубів і язика, неможливість використання зубної нитки для видалення залишків їжі з десневої борозни і проміжків між зубами), а також рідкісні візити до стоматолога з метою профілактики та лікування (46,7 %).

Ключові слова: підлітки, підшлункова залоза, патологія, ротоглотка, обстеження, лікування.