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**Management of Patients' Nutrition in Children's Tuberculosis Sanatorium
of the Republic Sakha (Yakutia)**

ABSTRACT

Analysis of nutrition management of children infected with *Mycobacterium tuberculosis*, being treated in the children's sanatoria of the Republic Sakha (Yakutia) was done. Data reporting on patients' nutrition management were analyzed, 640 menu-layouts derived from 9 regional children's tuberculosis sanatoria for 2011-2012 were studied. In the children's sanatoria of Sakha (Yakutia) Republic discrepancies to RAMS Institute of Nutrition recommended standards of consumption of basic foods, calorie, protein, fat and carbohydrates were established.

Keywords: tuberculosis, children, nutrition, sanatorium.

INTRODUCTION

The Republic of Sakha (Yakutia) is one of subjects of the Russian Federation, owing to climatic conditions there is high risk of tuberculosis illness among the population. The main attention in the republic is paid to questions of prevention of the disease of tuberculosis among the children's population. Function on prevention of tuberculosis at children is carried out by the children's tubercular sanatorium (CTS). Now in the republic there are 9 regional DTS located mainly in the regional centers of municipalities. The Republican children's tubercular sanatorium of T.P. Dmitriyeva is considered the head establishment on rendering the medical and diagnostic, preventive, rehabilitation help children from risk groups with tuberculosis by the order of Ministry of Health of the Republic of Sakha (Yakutia) No. 01-8/4-101 of March 14, 2007. "About improvement of work of children's tubercular sanatorium in RS (Ya)". This establishment carries out mobile work for the purpose of rendering organizational - methodical and practical help, and also annually analyzes indicators of their activity.

MATERIALS AND METHODS

We analyzed reporting data on catering services of children in 9 children's tubercular sanatoria of the Republic of Sakha (Yakutia) for 2010-2012. The analysis of financing of food article per one patient a day is carried out. Besides, consumption of main food ration in grams per one child a day is estimated. For the purpose of definition of an optimum diet of children in conditions of DTS we estimated food ration of patients by calculation of chemical composition and caloric content of food. In total 640 menus requirements from 9 regional sanatoria for 2011-2012, i.e. actually used for 10 days every quarter were analysed. We also estimated the nutritional and energy value of food of patients in comparison with norms of the Scientific Institute of Food of the Russian Academy of Medical Science (2007) recommended for children with tuberculosis.

In DTS the main contingent of patients included children from risk groups being treated from 3 to 6 months, the age of children generally was from 2 to 14 years.

RESULTS AND DISCUSSION

It is established that in regional DTS due to shortage of dietary sisters, their duties are assigned to senior nurses. Elder sisters make daily menus apportionments, control quality of the delivered food, storage and observance of products, and also terms of their realization. Also they control quality of cooking, compliance to physiological needs of children, and also sanitary state of catering department and observance of personal hygiene by workers.

The analysis allowed to reveal the existence of household administrative problems in regional DTS. So, unsatisfactory organization of food provision, low qualification of the personnel of catering departments naturally connected with low wages which is received by this category of workers is noted. Unsatisfactory equipment of catering departments is also established by processing and refrigerating appliances, kitchen stock. The material resources of catering departments in many DTS don't meet requirements, shortage of seats in dining rooms is noted as well.

Catering services in children's tubercular sanatoria, certainly, depend on financing. Data of financial means actual food expenses for one bed-day are presented in table 1.

As it is shown from the table in all regional DTS in 2012, except Churapchinsky region there is a tendency to increase a level of financing for food, in comparison with 2010. In general in regional DTS in 2012, in comparison with 2010, the amount of financing of one bed-day increased by 24,2% and averaged 200 rub 14 kopeks.

Results of the analysis of consumption by patients of meat and fish products are presented in table 2.

From the table it is visible that in a number of sanatoria the low level of meat products consumption is noted. So, in Vilyuysky DTS it was 34,4% lower, in comparison with the recommended norm, in Suntarsky – for 35,3%, in Ust-Aldansky – for 25,9%. Meat consumption above the recommended norm is noted in Verkhnevilyuysky and Nyurbinsky DTS where excess of norm made 9,9 and 12,5% respectively.

On consumption of fish production considerably low indicators are noted in Vilyuysky, Ust-Aldansky, Megino-Kangalassky and Tattinsky DTS. The consumption of fish production which was closer to the norm is noted in Suntarsky and Churapchinsky DTS.

Results of the analysis of consumption of dairy and sour-milk products and oils are given in table 3.

Volumes of consumption of milk and sour-milk production in five regional DTS are much lower than the norm recommended to scientific research institute of food of the Russian Academy of Medical Science, were closer to norm is noted in Megino-Kangalassky and Ust-Aldansky DTS, norms almost twice - in Churapchinsky DTS are higher. In all sanatoria absence in a diet of patients of cottage cheese and sour cream is revealed. Cheese appeared in a diet of patients in 2012 almost in all DTS. Creamy and vegetable oil is closer to norm patients in Upper-Vilyuysky, Megino-Kangalassky, Suntarsky and Ust-Aldansky DTS received.

According to the data obtained the main food ration of children in the conditions of regional DTS consists of pasta and grain. Volumes of consumption by patients of these types of products are presented in table 4.

As it is presented in Table, volumes of pasta and grain consumption considerably exceeded the recommended norm in all regional sanatoria, the lower indices are noted only in Megino-Kangalassky DTS. In Verkhnevilyuysky DTS the parameters exceeded 6 times, in Tattinsky – by 2,7 times, in Churapchinsky – by 2,6 times. Volumes of flour and bread consumption also in the majority of DTS exceeded the recommended norm. Considerable distinctions are also noted in consumption of sugar and confectionery. To sum up, in the majority of children's tubercular sanatoria in the diet of patients essential distinctions are noted.

Fresh vegetables and fruit are one of the most important sources of vitamins B in children's organism. We carried out also the analysis of consumption of fruit, vegetables, dried fruits and nuts which results are reflected in table 5.

From Table 5 it is visible that consumption of fresh vegetables in all DTS remains lower in 2011-2012 than the recommended norm, fruit considerable excess is noted in Verkhne-Vilyuysky and Ust-Aldansky DTS, lower norms are in Nyurbinsky DTS.

It is also established that in the daily diet of patients low volumes of consumption of dried fruits in Ust-Aldansky, Churapchinsky, Nyurbinsky and Vilyuysky DTS are noted. Nuts appeared in a diet of patients of Suntarsky and Ust-Aldansky DTS only in 2011, lack of them was still noted in Nyurbinsky and Tattinsky DTS.

Results of assessment of nutritional and energy value of products are reflected in Table 6.

It is necessary to pay attention to balance of food, i.e. to the ratio of proteins, fats, carbohydrates and power value, compliance of their quantity to physiological needs of children. When comparing with the recommended norms, insufficient consumption of proteins is noted in three sanatoria: Vilyuysky, Megino-Kangalassky and Ust-Aldansky. In many sanatoria excess of fats and carbohydrates is observed. In comparison with 2011 in Vilyuysky, Churapchinsky and Ust-Aldansky DTS in 2012 the caloric content of food of patients decreased almost by 1,5 times.

CONCLUSION.

The analysis of catering services in regional DTS revealed much more serious problems. So, in the diet of patients volumes of consumption of the main food have considerable distinctions which testify to the lack of systematic assessment of food of patients. The absence of experts – nutritionists, lack of analysis and control of catering services are the main reasons for these problems. This problem demands attention for the purpose to remedy and reduce compliance with the recommended norms of the Scientific Institute of Food of the Russian Academy of Medical Science.

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