



QUANTITATIVE AND SPECIFIC CHARACTERISTICS OF THE INTESTINAL MICROFLORA OF SICK CHILDREN WITH BURN DISEASE

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ABSTRACT

The study of the state of microflora was carried out in the dynamics of the treatment of burn disease. The results of the study showed that intestinal microbiocenosis in sick children with burn disease is characterized by a deficiency of bifidobacteria, an increase in the content of fungi of the genus Candida, lactose-negative Escherichia coli by 2.0 and more orders of magnitude with a reduced number of lactose-positive Escherichia coli. Consequently, pathogenetic therapy does not completely eliminate the existing intestinal dysbiosis. And this all suggests that it is necessary to carry out corrective therapy.

KEY WORDS: children, microflora, burn disease, intestinal microbiocenosis

INTRODUCTIONS

Burn disease is a pathological process in the body in response to the corresponding thermal lesions, in which the burn wound and the visceral changes caused by it are interrelated and mutually relevant [1,2,4,7,8].

Thermal injury, burn disease and its consequences are serious medical, social and economic problems. According to the World Health Organization (WHO), burns rank third, and in some countries even the second most common injury. Among the causes of death in various injuries, burns account for 20% in children and 28% in people over 65 years of age [1].

A burn wound is the main source of endogenous intoxication. There are a number of reports of involvement of the food channel in the formation of this syndrome. The microbial factor also plays an important role in the formation of pathological scars.

Thus, the problem of burn disease and its consequences in children and adolescents is one of the most urgent in modern health care.

PURPOSE

The purpose of the study is to assess changes in the microbiocenosis of the large intestine in sick children with burn disease.

MATERIALS AND METHODS

The studies were carried out in the department of combustiology of the Republican Scientific Center for Emergency Medical Aid and on the basis of the microbiological laboratory at the TSDI.

In total, 30 children of both sexes were examined in hospital. The largest number of children with burn disease was between 1 and 3 years of age. Among the sick children, there were 17 boys and 13 girls. The etiological factors of burns were flames and hot non-aggressive liquids (boiling water, soup,



tea, milk, hot oil). The control group consisted of 18 practically healthy children. Sick children were prescribed traditional therapy (anti-shock measures, administration of anticoagulants, antibiotic therapy both locally and their general use, prescription of antiseptic agents, vitamin therapy).

To study the microflora of the skin and the burn surface, we used the washout method using sterile cotton swabs dipped in nutrient broth. The washout was performed from 1 cm² of the skin surface.

All sick children had burns 1, 2, 3 AB degree with damage from 1% to 20% or more of the body surface. The localization of burns was the most diverse, it depended on the situation when receiving a burn.

RESULTS AND DISCUSSION

The study of the state of microflora was carried out by us in the dynamics of the treatment of burn disease. When analyzing the quantitative composition of the microflora of stool in sick children with burn disease, a decrease in the group of anaerobes-bifidobacteria by 2.79 lg CFU / g (P <0.001) was revealed, which was reflected in their total number. The total number of anaerobes was 10.17 ± 0.05 lg CFU / g, while in the control group in healthy children it was 12.20 ± 1.27 lg CFU / g. The changes in the number of lactobacilli were insignificant (P>0.05). Consequently, bifidobacteria are the most sensitive to changes in the intestinal environment in sick children with burn disease, while bifidoflora plays a major role in regulating homeostasis in the body.

In addition, bifidobacteria are involved in the enteral synthesis of vitamins, regulate intestinal peristalsis, producing lactic acid, determine pH, etc. [1,3,5,6].

Intestinal microflora in sick children with burn disease in the dynamics of traditional treatment

| Microorganisms | The number of microbes per 1 gram feces lg CFU / g.(M±m) | | |
|----------------------------|---|------------------|-----------------------------|
| | Control (n=18) | Before treatment | After traditional treatment |
| Total anaerobes | 12,20±1,27 | 10,17±0,05** | 10,81±0,66** |
| Bifidobacteria | 11,80±0,56 | 9,01±0,05* | 9,77±0,12* |
| Lactobacillus | 10,15±0,35 | 9,90±0,05 | 9,96±0,04 |
| Total anaerobes | 7,30±0,49 | 9,47±0,09** | 7,02±0,15* |
| Escherichia coli (L+) | 7,01±0,44 | 6,47±0,14** | 6,20±0,02* |
| Escherichia coli (L-) | 3,21±0,33 | 5,13±0,01 | 5,06±0,13** |
| Enterobacteria | 4,51±0,12 | 8,14±0,15** | 6,94±0,39 |
| Staphylococcus | 5,11±0,23 | 4,89±0,04 | 5,32±0,05 |
| group D Streptococcus | 4,03±0,12 | 5,15±0,08 | 5,07±0,01 |
| Fungi of the genus Candida | 2,60±1,76 | 7,18±0,10** | 6,15±0,27** |
| Corynebacteria | 2,91±0,17 | 6,15±0,19** | 3,82±0,87 |

Notes: differences are reliable * - at (P>0.05), ** - at (P <0.001)

The deficiency of anaerobes revealed in sick children with burn disease was reflected in the aerobic part of the intestinal microbiocenosis, in particular, its quantitative characteristics and species composition.

According to our data, the most characteristic is a sharp increase in the content of fungi of the genus Candida (P <0.001), lactose-negative enterobacteria (P <0.001) against the background of a decrease in lactose-positive E. coli to 6.47 lg CFU / g, staphylococci - up to 4.89 lg CFU / g. Most often there were lactose-negative E. coli, enterobacteria with altered enzymatic properties in the intestinal microflora of sick children with burn disease.

All these above changes were reflected in the total number of aerobes, the level of which increased to 9.47 lg CFU / g at the norm of 7.30 ± 0.49 lg CFU / g (P <0.001). The increase in the number of lactose-negative enterobacteria and fungi of the genus Candida is significant and amounts to 4.0 or more of the order. It shows a deficiency of anaerobes, amounting to 2.79-2.03 lg CFU / g. The study revealed a decrease in the number of lactose-positive Escherichia coli by almost 1.0 lg CFU / g in the microflora of sick children with burn disease compared to their number in healthy 7.01 ± 0.44 lg CFU / g.

The study of the state of microflora was carried out in the dynamics of the treatment of burn



disease. The results of the study showed that all the noted violations of the intestinal microbiocenosis indicators changed slightly in a positive direction after traditional treatment. And this suggests that in sick children of burn disease, intestinal dysbiosis persists after basic therapy.

CONCLUSIONS

Thus, intestinal microbiocenosis in sick children with burn disease is characterized by a deficiency of bifidobacteria, an increase in the content of fungi of the genus *Candida*, lactose-negative *Escherichia coli* by 2.0 and more orders of magnitude with a reduced number of lactose-positive *Escherichia coli*. Consequently, pathogenetic therapy does not completely eliminate the existing intestinal dysbiosis. And this all suggests that it is necessary to carry out corrective therapy. The study of the state of intestinal microbiocenosis in sick children, depending on gender, revealed the same tendency towards anaerobic deficiency and an excess of the aerobic group of microbes.

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