ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 8| Issue: 1| January 2022|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2021: 8.047 || ISI Value: 1.188

GAS CHROMATOGRAPHIC EVALUATION OF THE EFFICIENCY OF APRICOT OIL AND AEVITA IN COMPLEX THERAPY OF RACHIT IN CHILDREN

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ABSTRACT

Rickets is not only a pediatric, but also a medico-social problem, the essence of which is a violation of general metabolism, phosphorus-calcium, lipid metabolism, disorders of skeletal mineralization and the functional state of internal organs and systems. Gas chromatography is one of the methods for determining markers of metabolic processes in the human body. In this regard, a special place is occupied by fatty acids, the determination of which is easily performed by the method of gas-liquid chromatography. To achieve this goal, we examined 87 patients with rickets. Of these, 45 children with rickets, aggravated by pneumonia and malnutrition, are inpatient treatment. The examined patients were divided into 2 groups. Group I of children (38 patients) with rickets received the traditional method of therapy. Group II of the examined children with rickets (49 patients) received apricot oil and aevit against the background of the traditional method of treatment. In the examined children with rickets, who received traditional treatment, there was a wide range of fluctuations in the studied parameters of lipid metabolism. It was revealed that with rickets in children there are significant violations of the content of fatty acids. To correct the dismetabolism of higher fatty acids, along with traditional therapy, it is recommended to prescribe apricot oil and aevit, which ensures high efficiency of therapy in children with rickets.

KEY WORDS: ***rickets, patients, fatty acids, treatment, gas-liquid chromatography.***

INTRODUCTION

Gas chromatography is one of the methods for determining markers of metabolic processes in the human body. In this regard, a special place is occupied by fatty acids, the determination of which is easily performed by the method of gas-liquid chromatography [1].

We have developed a method for determining fatty acids in various pathological conditions, which includes the selection of a stationary phase and optimization of separation conditions [2,3]. This technique was used to study the fatty acid composition of blood serum in children with various pathologies, and the peculiarities of lipid metabolism in patients with vesicovaginal fistulas were studied [4-10].

Rickets is not only a pediatric, but also a medico-social problem, the essence of which is a violation of general metabolism, phosphorus-calcium, lipid metabolism, disorders of skeletal mineralization and the functional state of internal organs and systems [11-14]. The use of this technique to assess the effectiveness of the combined use of vegetable oil and antioxidants in the complex treatment of rickets is relevant from the point of view of the choice of corrective therapy.

PURPOSE OF THE STUDY

Gas chromatographic evaluation of the effectiveness of the use of apricot oil and aevit in the complex therapy of rickets in children.

MATERIALS AND RESEARCH METHODS

To achieve this goal, we examined 87 patients with rickets. Of these, 45 children with rickets, aggravated by pneumonia and malnutrition, are inpatient treatment in the clinic №2 SamMI. The control group consisted of 10 practically healthy children who were observed in the children's polyclinic №1 in Samarkand.

The composition of higher fatty acids in the blood serum of children with rickets was determined by gas-liquid chromatography [3]. To identify the separated methyl esters of fatty acids, we used the "bystanders" method and the method based on the "sorbent – sorbate" structural group components. As a result of identification, the following fatty acids were found in blood serum: C (16: 0) - palmitic, C

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(16: 1) - palmitoleic, C (18: 0) - stearic, C (18: 1) - oleic, C (18 : 2) - linoleic, C (18: 3) - linolenic and C (20: 4) - arachidonic. The fatty acid content was determined by the method of internal normalization.

RESEARCH RESULTS AND THEIR DISCUSSION

The examined patients were divided into 2 groups. Group I of children (38 patients) with rickets received the traditional method of therapy. The research results are presented in table 2.

Group II of the examined children with rickets (49 patients) received apricot oil and aevit against the background of the traditional method of treatment. The research results are presented in table 1.

Table 1. Composition and content of fatty acids in blood serum in children with rickets

Fatty acid	Control	При обследовании	P <
C (16:0)	28,17±1,37	30,87±1,53	0,01
C (16:1)	2,70±0,22	1,38±0,64	0,05
C (18:0)	26,13±1,32	28,03±1,04	0,01
C (18:1)	0,90±0,13	0.66±0,6	0,01
C (18:2)	33,32±2,51	29,73±2,34	0,05
C (18:3)	2,41±0,45	2,58±0,50	0,01
C (20:4)	3,56±0,60	2,68±0,60	0,01

Note: P is the significance of the difference between the indicators in the group of patients and healthy people.

A study of the composition of higher fatty acids in the blood serum was carried out in children with rickets (group I - 38 sick children with rickets) who were on the traditional method of treatment and group II (49 sick children with rickets) - when the traditional method of treatment was combined with the use of modified therapy The results obtained for determining the content of higher fatty acids in the blood serum of children with rickets in comparison with the data of healthy children are presented in Table 2.

Table2.Composition and content of fatty acids (in%) in blood serum depending on the method of treatment

Fatty acid	Control	Treatment method			
		Traditional Modified		Traditional Modified	
		M±м	P<	M±м	P <
C (16:0)	28,17±1,37	28,96±1,28	0,01	28,21±1,31	0,1
C (16:1)	2,70±0,22	1,62, ±0,43	0,01	2,55±0,30	0.1
C (18:0)	26,13±1,32	27,67±0,82	0,20	26,75±0,80	0,1
C (18:1)	0,90±0,13	0,76±0,10	0,20	0,92±0,10	0,1
C (18:2)	33,32±2,51	30,74±2,10	0,50	33,12±1,80	0,1
C (18:3)	2,41±0,45	2,11±0,45	0,05	2,73±0,45	0,1
C (20:4)	3,56±0,60	2,10±0.51	0,05	3,26±0,40	0,1

Note: P - relatively healthy

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In the examined children with rickets, who received traditional treatment, there was a wide range of fluctuations in the studied parameters of lipid metabolism.

In our opinion, lipid imbalance is probably due to the fact that the effect of specific therapy in the body is primarily aimed at correcting phosphorus-calcium metabolism, therefore, the studied parameters of lipid metabolism did not normalize, which required their further correction.

As can be seen from Table 2, the performed method of treatment showed its high efficiency, which is confirmed by the data obtained: C (16: 0) - 28.21 ± 1.31%, C (16: 1) - 2.55 ± 0, 30%, C (18: 0) - 26.75 ± 0.80%, C (18: 1) - 0.92 ± 0.10%, C (18: 2) - 33.12 ± 1.80% ; C (18: 3) - 2.73 ± 0.45%; C (20: 4) - 3.26 ± 0.40%, i.e. under the influence of the modified treatment, the parameters of the fatty acid composition returned to normal in the majority of patients.

CONCLUSIONS

It was revealed that with rickets in children there are significant violations of the content of fatty acids. To correct the dismetabolism of higher fatty acids, along with traditional therapy, it is recommended to prescribe apricot oil and aevit, which ensures high efficiency of therapy in children with rickets.

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