

A COMPREHENSIVE STUDY OF CONVALESCENT EPIDEMIC HEPATITIS PATIENTS, TREATED WITH SEA-SHORE HEALTH-RESORT FACTORS

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In the complex of therapeutic-prophylactic measures undertaken during the period of post-epidemic hepatitis convalescence, physical therapy along with diet and special regimen, plays an essential role. Over the period 1964 through 1965, the effect of fangotherapy was studied in a group of convalescent post-hepatitis patients, and the effect of a complex of sea-shore therapeutical factors (dosed sun- and sea-bathing) — in a second group of convalescents. Favourable results were recorded in either of the groups (9). Based on the early results, and having in mind the importance of the issue of post-hepatitis conditions' treatment, we proceeded with our studies on the listed above sea-side health-resort factors over the ensuing three years.

Purpose of the present paper is to give an account of the results of sea-shore health-resort treatment, applied to a series of 270 convalescent post-epidemic hepatitis patients over the past five years, on the ground of a wide range of clinical and biochemical indicators. Some of the clinical and experimental studies demonstrate a favourable influence of fangotherapeutical procedures on the functional state and morphological structure of the liver (1, 2, 4, 5, 6, 7, 12, 13, 15, 16, 17, 18, 19, 20). Vishnevskii and co-authors (6) report that during health-resort treatment of post-hepatitis conditions, a noteworthy improvement is attained provided fangotherapy was also included in the therapeutical complex. Both the immediate and the end results of fangotherapy are superior among the patients referred to health-resort treatment in earlier terms — within 1 to 6 months (6). Many authors (21, 22) claim positive results from the application of passive climatotherapy under sanatorial conditions to convalescent epidemic hepatitis patients. Active thalassotherapy of post-hepatitis conditions was resorted to in this country for the first time. The study covers 270 patients with viral hepatitis, treated in the clinic of infectious diseases — Varna. One to three months after dismissal from the clinic, half of the total number of convalescents were subjected to sea-shore health-resort treatment. The following observation groups were differentiated:

Group I — 100 adult convalescents, undergoing fangotherapy and conventional post-hepatitis regimen and diet.

Group II — 100 adult convalescents, maintained on identical regimen and diet, but without fangotherapy (control group).

Group III — 35 convalescent children, subjected to active thalassotherapy + the usual post-hepatitis regimen and diet.

Group IV — 35 convalescent children, maintained on identical regimen and diet, and not subjected to thalassotherapy (control group).

To obtain comparable values, we endeavoured to eliminate any preliminary selection in setting up the therapeutical and control groups. Mainly clinical and laboratory data, recorded upon admission and discharge of the patients, as well as those of the final examination, made before completing the health-resort therapy, were compared. At the same time and intervals the control patients too were subjected to check-up examinations. Treatment was conducted during the summer months.

Method of Treatment

Fangotherapy in the first therapeutical group was carried out according to the method of mean 10 kg therapeutic mud application in the hepatic area, at temperature of the mud ranging from 38—42° C. Ten therapeutical sessions average were performed. In the children of group III (therapeutical), after preliminary heliobiosimetry at controlled actinic and thermal protection during heliotherapy, a course of sun baths was conducted at gradual increasing the exposure time to 2 hours (10, 13). After the third day, sea bathing dosed according to slight cold loading (3) was added. A full therapeutical course lasted 15 days.

Results and Discussion

Table 1 and 2 illustrate the overall clinico-laboratory characteristics of the various groups of patients during the hospitalization period. It can be seen from the tables that there is no difference worth noting in the clinical course of the disease between the four groups of convalescent patients

Table 1

Comparative Initial Data in the Various Groups of Patients

Indices	Patients' groups	Fangotherapy		Thalassotherapy	
		Group I treated	Group II controls	Group III treated	Group IV controls
Average age (in years)		31.8 ± 7.3	27.0 ± 14.4	10.1 ± 4.5	11.2 ± 11.0
Average hospitalization term (in days)		23.5 ± 10	25.3 ± 8.2	20.9 ± 2.6	23.0 ± 6.3
Clinical forms (in %)					
Slight		14.0	49.0	60.1	54.2
Middle-heavy		36.0	35.0	20.0	37.4
Heavy		12.0	9.0	0.0	0.0
Protracted		6.0	3.0	2.8	2.8
Recurrent		1.0	1.0	17.1	2.8
Anicteric		1.0	3.0	0.0	2.8
Urobilinogenuria — in days		18.1 ± 9.6	15.4 ± 1.6	8.5 ± 1.6	13.0 ± 7.6
Bilirubinuria — in days		13.5 ± 9.5	12.4 ± 6.4	6.6 ± 4.0	11.7 ± 8.8

Table 2

**Comparative Clinico-Laboratory Indices from the Hospitalization
of the Different Groups of Patients**

Indices	Groups of patients		Fangothrapy				Thalassotherapy			
			I-treated		II-controls		III-treated		IV-controls	
			admis.	dism.	admis.	dism.	admis.	dism.	admis.	dism.
Hepatomegaly — in %	100.0	48.0	100.0	14.0	100.0	42.0	94.4	11.2		
Heaviness and light pain in the right subcostal area	94.0	26.0	81.0	29.0	88.8	2.8	88.8	0.0		
Prolonged Weltmann coagulation column	65.0	49.0	59.0	48.0	57.1	42.8	62.8	42.8		
Positive thymol turbidity test	70.0	67.0	80.0	71.0	85.7	74.2	80.0	71.4		
GPT increase	100.0	51.0	100.0	52.0	100.0	40.0	100.0	48.5		
Mean bilirubinemia (in mg %)	5.32	1.01	4.80	0.54	3.34	0.68	4.04	0.74		

In groups I and II (fangothrapy and controls,) practically all indicators which were separately estimated, display comparatively insignificant difference, and (except for hepatomegaly) they are not statistically reliable. However, their complex interpretation and comparative study warrant the assumption for a slightly heavier clinical picture of acute hepatitis among the patients of group I. Most of the indicators corroborate the latter finding. The fangothrapy procedures were tolerated well and without complaints by the patients. No worsening of their subjective and objective state was established during the treatment, as well as at the check-up examinations, made after the treatment course was completed. The data of the last examination are presented in Table 3.

It is evident from Table 3 that significant one-way results, allowing the reaching of rather specific and convincing inferences as to the effect of fangothrapy, were not obtained. A number of pathological indices were somewhat more frequently manifested among the patients of group I, although most of them were subjective and the difference, in comparison with controls, was within the limits of statistical reliability with the exception of easy fatigability and reduced working ability ($t = 2.0$; $p < 0.05$). However, the substantially better state of the patients treated with mud insofar liver size is concerned — one of the essential objective symptoms related to past hepatitis — is impressing. Despite their more unfavourable original condition is beyond doubt — hepatomegaly at dismissal recorded in 48 per cent of the cases — after fangothrapy enlargement of the liver was established in 4 per cent only. Hence, during the time interval under study, a normalization of the liver size took place in 44 per cent. For the same period of time, in the controls an analogical healing effect was recorded in 4 per cent only ($t = 7.5$); Consequently, there is a high probability ($p < 0.01$) that this is due to the mud therapy.

The difference established in the percentages of the pathological biochemical indicators (GPT, Weltmann and thymol turbidity test, residual

Table 3

**Comparative Clinico-Laboratory Data at the End of the Therapy
under Trial in the Various Groups of Patients**

Indices	Group of convalescents		Last check-up examination			
			Fangotherapy		Thalassotherapy	
	I treated	II controls	III treated	IV controls		
Hepatomegaly — in %	4.0	10.0	1.7	8.4	2.8	1.0
Low spirits	8.0	5.0	0.3	0.0	0.0	—
Reduced working ability	8.0	2.0	2.0	0.0	0.0	—
Feeling of heaviness after meal	6.0	3.0	1.0	0.0	0.0	—
Heaviness in the right subcostal area	10.0	6.0	1.5	0.0	0.0	—
Prolonged Weltmann's coagulation band	32.0	30.0	0.3	42.8	25.0	1.5
Positive thymol turbidity test	13.0	18.0	1.0	11.2	20.0	0.9
Residual hyperbilirubinemia	6.0	9.0	0.8	0.0	2.8	0.3
Thymol test — average in F. E.	25 ± 4	28 ± 4	—	25 ± 8	29 ± 1	—
Transaminases — average in IU	8 ± 5	10 ± 7	—	10 ± 8	10 ± 6	—
Bilirubinemia — average in mg %	0.57 ± 0	0.54 ± 0	—	0.37	0.40	—
Increased transaminases	9.0	4.0	1.4	11.2	20.0	0.9

hyperbilirubinemia) between the two convalescent groups under review are statistically insignificant. Anyway, bearing in mind the slightly heavier initial state in the patients of group I, and the results of the last examination as well (chiefly in terms of the great clinical and prognostic importance of residual hepatomegaly), the general opinion is by all means in favour of the fangotherapeutical method experimented upon. Insofar as effectiveness of active thalassotherapy in children is concerned, the comparative study of the initial state in the children under observation (Table 1 and 2) does not provide sufficient evidence of essential one-way clinico-laboratory difference between the two groups — treated one and control one. In fact, if one proceeds from the duration of hospitalization, urobilinogenuria and bilirubinuria (differences which separately considered are deprived of statistical reliability), as well as from the clinical forms, in particular (the incidence of middle heavy forms in the third group is twice as low as in the fourth group), it might be assumed that the initial state of the control children was somewhat more unfavourable than that in the children treated with thalassotherapy. Yet, on the other hand, taking into consideration the hepatomegaly index would lead to an opposite conclusion, since 48.8 per cent of the children of group III were discharged with enlarged liver against 11.2 per cent in group IV ($t = 3.0$). Therefore, in general outline, there is sufficient reason to accept a relatively similar initial state in the two groups of children in question. The procedures were very well tolerated by the children, and caused no untoward reactions whatsoever. Even at the final check-up examination, these children and the controls as well were free of any subjective complaints and presented but slight variations from the normal biochemical values. The differences in the latter

between the two compared groups are statistically insignificant (Table 3). It is worth re-emphasizing that in these two groups of patients too, the analogical finding, already established in the first two groups, is observed, e. g. a favourable effect on hepatomegaly. Thus, the comparative study of this particular index in group III and IV after dismissal, and at the last check-up examination (Table 2 and 3), shows that in the mean time it returns to normal in 34.4 per cent of the children subjected to thalassotherapy, and in 8.4 per cent of those not subjected to a similar treatment. The difference established is significant. It is furthermore statistically reliable ($t=2.8$; $p<0.01$), and that is why it is by no means ruled out to be in connection with the treatment in question.

Conclusion

Fangotherapy and thalassotherapy, applied to various groups of viral hepatitis convalescents, were well tolerated by all patients. Undesirable reactions or exacerbations of the morbid process in the liver were not recorded.

The comparative study of the patients, after analogical time interval, with similar in age and clinical severity control cases (not subjected to the same treatment) failed to reveal statistically reliable difference in the clinico-laboratory indices, except for hepatomegaly. The liver normalized in a substantially higher percentage of cases following treatment with fangotherapeutical (resp. thalassotherapeutical) procedures.

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**РАСШИРЕННЫЕ ИССЛЕДОВАНИЯ РЕКОНВАЛЕСЦЕНТНЫХ ПОСЛЕ
ЭПИДЕМИЧЕСКОГО ГЕПАТИТА, ЛЕЧЕННЫХ КУРОРТНЫМИ
ФАКТОРАМИ МОРСКОГО ПОБЕРЕЖЬЯ**

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Р Е З Ю М Е

Исследуется эффект грязелечения и активного морелечения у 270 реконвалесцентных после вирусного гепатита лиц, половина которых служит контролем. Все грязелечебные и морелечебные процедуры пациенты перенесли хорошо — без нежелательных реакций или обострения болезненного процесса в печени. Сравнительные исследования после окончания исследуемого лечения не установили наличия статистически достоверных различий в клинико-лабораторных показателях (за исключением гепатомегалии) между лечеными и контролями. Печень нормализовала свои размеры в значительно более высоких процентах случаев среди леченных грязелечебными (соств. морелечебными) процедурами.