

CLINICO-DIAGNOSTIC STUDIES OF SELLEK-FRADE'S TEST IN PATIENTS WITH EPIDEMIC HEPATITIS

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In recent years, due to its mass spread, epidemic hepatitis became a medical problem of world-wide importance. One of the still unsatisfactorily solved problems in connection with this infectious disease is the question related to its diagnosis. Extensive efforts are made to introduce appropriate and reliable clinico-laboratory test particularly having in mind the lack of trustworthy and practical applicable specific microbiological tests for etiological diagnosis.

Informed from the literature (^{1,2,3}) about a new test — that of Sellek-Frade, we set ourselves the task to prove the diagnostic value of this test in our patients, suffering from epidemic hepatitis.

The test is introduced by Sellek and Frade in 1957 in Habana. The authors recommend this test as a very easily performed flocculation test with a considerable diagnostic importance in hepatic disorders. The test is examined later in the clinic of A. Lemaire in Paris¹.

The test of Sellek and Frade is a colloid-stability test, in which cuprum acetate being used as a substance, which disturbs the colloid stability of blood serum. Similar to most other colloid-stability tests this test becomes positive when the relation between albumins and globulins is disturbed.

Reagents and technique. A saturated solution of cuprum acetate is used as a basic reagent (200 g cuprum acetate is dissolved in 500 ml bidistilled water), 2.5 ml of this solution is diluted with distilled water in a measure flask of 100 ml. The basic and the working solutions are placed in refrigerator and are durable for an indefinite time. The reaction is performed in the following way: 0.1 ml of fresh and non-hemolyzed serum is added to 6 ml of the working solution of cuprum acetate. It is mixed and after 5 minutes the results are recorded: the reaction is negative if the solution remains clear or slightly turbid: the reaction is positive in case a macroscopically visible flocculation occurs.

For the purpose the test was performed 433 times in total, from which 324 examinations in 151 patients with epidemic hepatitis, treated at the Clinic for Infectious diseases of the Higher Medical Institute in Varna. The observed hepatitis patients are of different age (from 1½ to 84 years), with no particular sex prevalence (78 females and 73 males). The test of Sellek and Frade was repeatedly performed in each patient, in different periods from the onset of the disease (it was performed as early as the second day and up to one month after hospital discharge of the reconvalescent individuals. The test was accomplished

parallel with the wide-known and recognized diagnostic tests of MacLagan, Weltmann and for serum bilirubin, and in some of the cases — with the test of Burstein and Samai and serum transaminase and aldolase (Table 1).

Table 1

Results of the tests performed, distributed after each 5 days of observation

Period for the performance of tests from the onset of the disorder in days	Sellek-Frade		MacLagan		Weltmann		Burstein-Samai		Transaminase		Aldolase
	pos.	neg.	pos.	neg.	elong.	neg.	pos.	neg.	incr.	normal	incr. n.
0—5	31	9	33	8	32	14	29	12	2	1	1
6—10	48	17	44	18	50	17	39	14	9	1	2
11—15	18	8	17	9	16	9	12	4	—	—	1
16—20	31	19	30	17	26	27	30	12	2	—	1
21—30	50	31	46	35	28	48	35	9	6	1	2
30—60	40	22	33	25	45	41	41	30	5	1	3
Total	218	106	203	112	195	156	186	81	24	4	10

From the data obtained it is evident that the test of Sellek and Frade becomes positive early in epidemic hepatitis. In the 40 examinations performed during the first 5 days from the onset of the disease this test was positive in 31 cases. High is the incidence of positive results during the following 10 days, i. e. in the climax of the disease, so that in general in the first 15 days after the onset of the disease the test proved to be positive in 74.04%. With the remaining tests this per cent is the following: MacLagan — 71.77%, Weltmann — elongation of the coagulation band — 71.02%, Burstein and Samai — 69.66%. Later, corresponding to the onset of reconvalescence, the test of Sellek and Frade gradually becomes negative — 37.25% of the 193 examinations prior to discharge from hospital were already negative. Nevertheless, this tendency towards negativation of the test is slower, as compared with the remaining two basic colloid-stability tests. This became obvious also in control examinations performed on 57 patients one month after their discharge from hospital. Sellek and Frade's test was negative in 21 of them, whereas MacLagan and Weltmann — in 39 and 29 cases, respectively.

In order to elucidate the degree of parallelism existing between positivation of Sellek and Frade's test and the blood bilirubin level, we compared its results with the data of total bilirubin in the serum of individuals suffering from hepatitis (Table 2).

The test of Sellek and Frade at different serum bilirubin values

0—1 mg%		1—2 mg%		2—5 mg%		5—10 mg%		above 10 mg%	
pos.	neg.	pos.	neg.	pos.	neg.	pos.	neg.	pos.	neg.
58	28	54	36	37	26	33	13	19	4

Table 2

No relationship could be detected in this comparative study. It should be pointed out that bilirubin values up to 2 mg% are measured in the reconvalescent period, with the exception of 5 cases, in which these concentrations were established till the

6th day from the onset of the disease. The test was frequently positive even before the occurrence of jaundice in icteric forms, as well as in anicteric forms.

In order to obtain an idea on the extent to which Sellek and Frade's test is indicative of dysproteinemia in epidemic hepatitis and in some other disorders, the test was performed together with the other foregoing tests also in a group of 29 healthy individuals displaying no history of jaundice, as well as in 23 patients suffering from other ailments: hepatic cirrhosis, chronic hepatitis, mechanical jaundice of a neoplastic origin, hemolytic anemia, cardiac failure, dysentery, etc. In the 29 healthy individuals the test of Sellek and Frade was positive in 4 cases, in one of the latter MacLagan's test was also positive. As far as the results are concerned from the test in patients with the aforementioned disorders data obtained so far are insufficient and permit no conclusions. Nevertheless our present impressions are not in favour of its "specificity". Our studies in this respect are still in progress. Comparative investigations — with serum iron, serum cuprum, etc., are also carried out.

Conclusions:

The test of Sellek and Frade may be used for the diagnosis of epidemic hepatitis particularly because of its early positivation, as well as for the control of posthepatitic conditions, owing to its comparatively late negativation. Technically this test is easily and rapidly performed and does not require deficient reagents and devices. As regards its diagnostic value it is to a certain degree inferior to other tests of greater reputation as the colloid stability and ferment tests. Having all this in mind, for the present we recommend the test of Sellek and Frade to be used mainly in smaller hospitals, which do not dispose of technical and personnel facilities for wide and precise constellational combinations in the laboratory diagnosis of liver disorders.

REFERENCES

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КЛИНИКО-ДИАГНОСТИЧЕСКИЕ ИССЛЕДОВАНИЯ ПРОБЫ СЕЛЕК-ФРАДЕ У БОЛЬНЫХ ЭПИДЕМИЧЕСКИМ ГЕПАТИТОМ

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РЕЗЮМЕ

Авторы сделали 324 исследования пробой Селек-Фраде у 151 больного эпидемическим гепатитом, 57 больных этим же заболеванием в стадии реконвалесценции, у 23 больных другими болезнями и у 29

здоровых лиц. Хорошие результаты оправдывают использование пробы в диагностике эпидемического гепатита, хотя в диагностическом отношении она, до некоторой степени, и слабее более реномированных коллоидостабилитетных и ферментных проб. Технически она легко и быстро выполнима и не требует аппаратуры. В заключении авторы рекомендуют использовать эту пробу главным образом в более маленьких лечебно-диагностических заведениях, которые не располагают техническими и кадровыми возможностями для более сложных и более совершенных лабораторных проб функции печени.