IS EARLY AMBULATION SAFE IN VIRAL HEPATITIS?

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ABSTRACT

To determine if early ambulation was safe in acute viral hepatitis (AVH), 202 patients of uncomplicated AVH were prospectively randomised into two groups. Group A (n=100) received conventional treatment with bed rest while group B (n=102) patients were ambulated as soon as their clinical symptoms abated and progressive clinical and biochemical recovery was noted. While mean recovery time in two groups was not significantly different (28.8 vs 29.7 days), bed rest period in group B was significantly less (28.8 vs 8.6 days). Natural history of the AVH, clinical and biochemical findings and relapse rate over a follow up period of 14 to 16 months, were no different in the two groups. None of the patients developed chronic hepatitis. Early ambulation is therefore safe in uncomplicated AVH and can lead to enormous saving of manhours and hospital resources.

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Introduction

Patients with acute viral hepatitis (AVH) in the Armed Forces are treated with enforced rest possibly based on the experience in the Mediterranean theatre during and after World War II [1-4]. Hepatitis patients, already debilitated by severe physical demands of battlefield, were forced into early activity which led to relatively higher frequency of relapse/chronic sequelae. Following these reports the average duration of bed rest for soldiers with AVH rose from 30 days (noted in 1943-44) to 89 in 1949-51 [5]. Since early 1950s however, the emphasis on strict bed rest and prolonged confinement has been increasingly challenged. [6] The present study was undertaken to find out the implications of moderate physical exertion during the recovery phase of AVH on the course and outcome of illness.

Patients and Methods

All consecutive patients of AVH admitted to Command Hospital (EC), Calcutta, during the period from 1989 to 1992 were evaluated for inclusion into this study. Diagnosis was

made on the basis of typical clinical history, physical findings and biochemical results suggestive of hepatocellular jaundice (more than five fold rise in serum transaminases). Serological tests to determine the type of virus involved were done as and when available in service laboratory, but were not considered a precondition for the diagnosis. All patients were hospitalised as per existing service policy and were advised bed rest, ordinary (O) diet, and tablet multivitamin (one tablet twice daily). Clinical and biochemical assessment was repeated once a week and any patient showing features of a complication like hepatic encephalopathy during the initial part of illness was excluded from the study.

As the symptoms of the illness abated, and biochemical tests of liver function started showing improvement, the patients were randomised into two groups. Group A patients were treated with bed rest with bathroom facilities as before. Group B patients were motivated to move about gradually and within a week were put through an ambulation programme. The ambulation programme

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was devised to simulate the pattern of exertion that one may have to undertake while on sick leave at home even when advised rest (Table 1). After the patients recovered, they were sent on sick-leave and thereafter were reviewed and disposed off as per the clinical assessment.

TABLE 1

Pattern of activity during the ambulation undertaken by patients randomised to group B.

Time (Hours)	Activity
0500-0600	Walk and run as per capacity and inclination.
600-0900	Breakfast and rest.
0900-1130	Hospital working : Cleaning up the ward, shifting patients to and from trolley, walking up and down stairs to fetch stores and gardening.
1130-1530	Lunch and rest.
1530-1830	Hospital working/long walks up to 10 Km
1900-2200	Dinner and rest/sitting up in TV room.

Assessment included clinical examination, meticulous record of natural history, biochemical tests of liver functions (LFTs), prothrombin time, and an RPHA test for HBsAg. 'Hospital stay' was noted carefully in both the groups. 'Recovery time' was defined as time from admission to complete clinical and biochemical recovery. 'Bed rest period' was defined as time since hospital admission till patients were allowed ambulation in form of moderate exertion. Occurrence of clinical or biochemical relapses and evidences of any chronic liver disease were carefully looked for during the follow up.

Chi square test and Unpaired T-test were employed for statistical analysis of the data.

Results

Out of 397 patients having illness resembling AVH only 202 patients were included in this study. The main reasons for exclusion were : doubt about primary disease in view of history of hepatotoxic drug (including significant quantities of alcohol) intake, severe disease requiring more than 2 days of intravenous alimentation and suspicion of complicated course (encephalopathy or ascites) in the initial phase of the illness. Mean

age of the 202 patients selected for this study was 28.9 (range 14-56) years. Majority of them were males (182/202, 90.1%).

Mean recovery time for symptomatic as well as biochemical recovery and mean 'hospital stay' were comparable but the 'bed rest period' was significantly different in two groups (Table 2). Clinical presentation and biochemical abnormalities showed no significant difference in these two groups. (Table 3). HBsAg was found to be positive in 31 (31%) patients of group A and 36 (35.3%) patients of group B.

TABLE 2

Hospital stay profile and recovery times noted in two groups of patients.

	Group A Mean $\pm$ SD	Group B Mean $\pm$ SD
Recovery time (days)	28.8 $\pm$ 14.6	29.7 $\pm$ 16.8
Hospital stay (days)	36.2 $\pm$ 11.3	38.3 $\pm$ 15.9
Bed rest period (days)	28.8 $\pm$ 11.3	8.6 $\pm$ 3.8

Secondary rise in transaminases after transient initial recovery was seen in 12 patients during the symptomatic period. Eight months follow-up was completed by 198 cases (98%) and data is available on 187 patients (92.6%) regarding 14 months clinical and biochemical follow-up (Table 4). No case of hepatic failure or biochemical relapse occurred during the period of follow-up. Thirteen patients were detected to have raised transaminases at the time of review after sick-leave. They were placed in sheltered employment. Another, review after a period of six months revealed normal transaminases in 10. Liver biopsy in remaining was reported as normal in two and as prolonged hepatitis in one (chronic lobular hepatitis). This latter patient was further followed up and reviewed after another 6 months period showed normal transaminases and normal liver biopsy. No case of chronic persistent or active hepatitis was detected.

Discussion

The results of our observation on 202 patients of AVH over a period of 2¹/₂ years,

TABLE 3

Clinical presentation and peak levels of biochemical abnormalities seen in two groups of AVH patients. (Total number = 202; Group A = 100, Group B = 102)

Characteristics	Group A		Group B	
	No	(%)	No	(%)
1. Mean duration of prodromal symptoms days	6.8		7.1	
2. Prodromal symptoms				
(a) Malaise	76	76	82	80.4
(b) Fever	45	45	42	41.2
(c) Headache	39	39	34	33.3
(d) Diarrhoea	24	24	28	27.5
(e) Anorexia	93	93	91	89.2
(f) Nausea	81	81	73	71.6
(g) Arthralgia	21	21	19	18.6
3. Symptoms/Signs during icteric phase*				
(a) Nausea	97	97	99	97.1
(b) Vomiting	19	19	27	26.5
(c) Malaise	83	83	72	70.6
(d) Pain RUQ. Abdomen	37	37	29	28.4
(e) Fever	14	14	25	24.5
(f) Hepatomegaly	91	91	95	93.1
(g) Splenomegaly	22	22	19	18.6
(h) Clay stools	53	53	48	47.1
4. Mean Peak Serum bilirubin (mg/dl)	7.6		8.2	
5. Mean Peak SGOT (iu)	79.2		105.8	
6. Mean Peak SGPT (iu)	142.4		158.3	

Note : 1. All patients selected for this study had icterus and high coloured urine, which has not been included in the table. 2. Differences between two groups are not statistically significant.

indicate that it is safe to ambulate these patients much earlier than what is prescribed by the current policy. Early ambulation can lead to enormous saving of manpower and resources to the state. The physical activities included long walks interspersed with short jogs, run up and down the stairs and light gardening work. These do not seem to have caused any adverse effects.

Blood flow to liver significantly reduces when an individual undertakes physical exercise in upright posture [7-10] This was the basis of popular hypothesis of yesterday, that exertion may be harmful to patients of AVH [11]. However, physical exercise has not been shown to have any deleterious effect on con-

TABLE 4

Clinical and biochemical profile at the time of first (6-8 weeks), second (6-8 months) and third review (12-16 months) in two groups studied.

Time of review	GROUP A		GROUP B	
	Total	Positive	Total	Positive
1 After sickleave	100		102	
(a) Symptoms		12(12)		11(10.8)
i. Fatigue		9(9)		10(9.8)
ii. Malaise		4(4)		6(5.8)
iii. Weakness		8(8)		11(10.8)
iv. Lethargy		10(10)		10(9.8)
v. Pain RUQ		9(9)		7(6.8)
vi. Weight loss		2(2)		4(3.9)
(b) Signs		20(20)		18(17.6)
i. Heatomegaly		20(20)		18(17.6)
ii. Icterus		0		0
(c) LFTs		5(5)		6(5.8)
i. S. bilirubin > 1mg/dl		3(3)		2(1.9)
ii. SGOT > 30 iu		4(4)		4(3.9)
iii. SGOT > 30 iu		5(5)		4(3.9)
Second review	99		99	
(a) Symptoms		7(7.1)		6(6.1)
(b) Signs		3(3.0)		4(4.0)
(c) LFTs		2(2.0)		1(1.0)
i. S. bilirubin		0		0
ii. SGOT		2(2.0)		1(1.0)
iii. SGPT		2(2.0)		1(1.0)
(d) Liver Biopsy				
i. Normal		1(1.0)		1(1.0)
ii. CLH		1(1.0)		0
3. Third review	93		94	
(a) Symptoms		0		0
(b) Signs		0		0
(c) LFTs		0		0

Note : 1. Differences between two groups are not statistically significant.

2. Figures in parantheses show percentage.

valescent phase of AVH [12-15] and anoxia features nowhere in the pathogenesis of hepatic parenchymal damage in AVH. The latter has been shown to be related either to cytopathic effects of virus or to immune mechanisms [16]. In addition, considering a large number of hepatotropic viruses [17-18], the relapses of viral hepatitis need to be defined more precisely because a second virus infection can not be ruled out clinically. In our study, we did not come across even a single case of clinical relapse. Recurrence of some symptoms in absence of any LFT abnormality was not uncommon (23, 11%) and 11

patients were detected to have mild persistent rise in transaminases. A secondary worsening of LFTs is not an unusual phenomenon. It was noted to be present even in the group A (bed rest). Its incidence is not significantly higher in patients who undertook moderate physical activity during their recovery phase. This may be due to superinfection by another virus or fluctuation in the immune status of the individual. A typical example of the former is delta virus superinfection [19].

Long term follow-up over one year period did not reveal any increase in incidence of subacute or chronic liver disease. One patient did have prolonged hepatitis which resolved completely within one year. No case of chronic persistent or active hepatitis was seen.

The doubts expressed earlier by Krikler [20] about exercise precipitating acute liver failure, have not been addressed to, in the present study. The observations by the author pertain to activity undertaken during the early part of clinical illness [11] which is not the subject of debate in the present work. We too recommend that patients should preferably be kept in bed during the symptomatic early phase of illness. However, as the patient gradually improves, he reaches a point where clinical symptoms have subsided, his appetite is good and he wants to move about. At this stage, in spite of the fact that he continues to have icterus and mild rise in transaminases, we have permitted ambulation without any adverse subjective and objective developments. Prolonged bed rest by itself can cause physical disability and emotional disturbance [21]. Long confinement may impose unnecessary financial hardship on the patient and in the setting of service, patient can lose his/her acting rank.

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