



normal livers. Elevation of SGPT was accompanied by a diagnostic rise in heterophile titer in one man, who was therefore classified as having infectious mononucleosis. One man has had recurrent elevations of SGPT since September 1965. He has remained entirely well throughout this time and continues to work. Liver biopsies on four occasions have shown nonspecific focal infiltration of the sinusoids with mononuclear cells and equivocal evidence of hepatocellular injury. Comprehensive diagnostic workup has failed to explain these findings.

The clinical course in the four men who contracted hepatitis in Thailand is interesting in several respects. None felt ill and none displayed anorexia, easy fatigability, or aversion to cigarettes before or during hospitalization. Maximal values of SGPT ranged from 300 to 1120 Sigma units, and all four had elevations of alkaline phosphatase. Only one man had hyperbilirubinemia, the maximal value being 1.6 mg/100 ml. The liver was neither enlarged nor tender on physical examination. Although the disease was extremely mild clinically in all four, two of the men had transaminase elevations for 9 weeks, despite hospitalization at bed rest. The other two patients had documented transaminase elevations for at least 3 weeks. The liver biopsies in all four patients were in every way typical of hepatitis, though bile plugs in the canaliculi were conspicuously absent.

## DISCUSSION

Several important sources of error effecting the accuracy of estimates of the incidence of hepatitis in this unit have been identified:

a. Hepatitis appears to be a disease which does not occur randomly in time, but is closely related to the duration of stay in country. Conrad et al, noted that the incidence of hepatitis in Korea had 2 peaks, one about 5 and the other 11-12 months after arrival in the country. This was interpreted to be the resultant of relaxation of precautions against eating local food. This seemed to occur after the initial period of unfamiliarity with the country had worn off, and again just prior to completion of the duty tour. In this study, the cases contracted in Thailand appear to be following the same time pattern as that described for Korea. Because this unit has been in country for only a little over 6 months it has passed through only one "peak", and calculations on a per annum basis would be unreliable.

b. Roughly 50 per cent of the men who began the study have left the unit and have been lost to follow-up. There is no way to know how many of these men were in the incubation stage at the time of departure and developed with hepatitis later.

c. It is possible that some men had extremely mild disease with elevation of SGPT so brief that they were not detected by the screening at 3-week intervals.

d. Likewise, the diagnosis could have been missed a bleeding, for the interval between screening tests then became 6 weeks.

e. Gamma globulin may have modified the disease so that pathological diagnosis was impossible. There were two men with nonspecific evidence of recent hepatocellular damage which may have been due either to hepatitis or to alcohol.

These sources of error tend to underestimate the true incidence, but the data can still be used for minimum estimates. There were 333 men remaining in the study at the end of 6 months, for an incidence of at least 12 per 1000 men during the first 6 months in country.

The small number of cases of hepatitis studied to date makes generalizations about the clinical course in patients who have received gamma globulin exceedingly risky. The results suggest, however, that the clinical course may be milder and the duration of hepatic necrosis (as judged by transaminase elevation) may be much longer than in patients who have not received prophylaxis.

**TABLE I**

**Liver Function Studies**

Biopsied within days of diseases	No.	Age Average	Male	<b><u>LIVER FUNCTION</u></b>						
				<b><u>Bilirubin</u></b>		<b><u>Serum Protein</u></b>		<b><u>Transaminase</u></b>		Alk.p
				Direct	Indirect	Ald.	Glob.	SGOT	SGPT	
7 days	16	24 16-47	12	5.9 (16)	4.8 (16)	4.2 (16)	3.4 (16)	341 (15)	518 (15)	5.5 (16)
14 days	23	27 16-50	16	4.7 (22)	5.6 (22)	3.8 (18)	3.1 (18)	184.7 (19)	211 (18)	5.0 (17)
21 days	12	33 20-71	7	5.7 (12)	5.7 (12)	3.7 (10)	3.2 (10)	287 (9)	254 (8)	8.3 (9)
28 days	5	25 21-30	2	9.9 (5)	7.9 (5)	3.9 (5)	3.0 (5)	494 (5)	477 (5)	4.3 (5)
Over 28 days	4	32 27-36	4							

**Character of Viral Hepatitis**

**TABLE II**

**Histological Changes in Relationship to Duration of Disease**

Duration of Disease in days	Active	Active with	Active with	Healing	Healing with pronounced scar
		Cholestasis	glandular transformation		
7	9	3	1	2	1
14	12	7	1	1	2
21	2	4	1	1	4
28	2	2	—	—	1
Over 28	2	1	—	—	1