AN ANNUAL CYCLE OF ACUTE HEPATITIS IN THAILAND

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OBJECTIVE : To determine if there are appreciable yearly cycles of the incidence of acute hepatitis in Thailand among persons of different ages, sexes, or geographic locations.

BACKGROUND : The number of cases of acute hepatitis reported per month in countries with temperate climates does not fluctuate appreciably with the annual cycle (1). Reviews of the epidemiology of hepatitis in tropical regions do not allude to any previous reports of "seasonality" of acute hepatitis rates (2).

Data collected by the Ministry of Public Health over the past few years suggests that there is a major seasonal cycle of acute hepatitis in Thailand (see Figure 1). For the past 3 years, (data from 1980 is not yet complete) 1977, 1978, and 1979, there have been appreciable cyclic variations in the number of cases reported per month: nadirs of 500 to 700 cases per month have been observed in the months of November, December, and January, while peak rates of 1000 to 1600 cases per month are recorded for the months of July and August. Annual cycles for males and females follow the same pattern, with a constant male to female ratio of approximately 1.5 to 1.0

In recent clinical studies of acute hepatitis in Bangkok we have learned that most acute hepatitis in children less than 15 years of age is due to hepatitis A, while most hepatitis in young adults in due to type B. As essentially all rural as well as all urban Thai adults are probably immune to hepatitis A but less frequently immune to hepatitis B, it is reasonable to suppose that the etiologic pattern in parts of Thailand outside Bangkok is similar to that found in Bangkok, i.e., A in children and B in adults. If this is so, then an analysis of age specific attack rates could provide a clue to possible seasonal changes in hepatitis A, B, and perhaps non A - non B.

MATERIALS AND METHODS : Acute hepatitis in Thailand is a notifiable disease. Accordingly, standardized forms as available to health facilities which include blanks for the diagnosis, patient age, sex, and residence. These forms are regularly sent by mail to the Department of Epidemiology for tabulation.

Partial tabulation of this data is published annually by the Ministry of Public Health as a booklet entitled "Epidemiological Surveillance Report, Thailand." However, an analysis of the data according to the age, sex, and geographical locale of the cases is not routinely compiled and reported; this analysis was performed by AFRIMS personnel and is presented here.

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RESULTS : Figure 2, A through I, shows the annual cycle of the overall national totals of acute hepatitis according to the age and sex of patients for the years 1977, 1978, and 1979. Cycles, reflecting the summated total for all age groups, with peaks in July and August, can be easily seen in the age groups 1-4, 5-14, 15-24, and 25-34; are possibly present in the age groups 35-44, 45-54, and 55-64; and are not seen at all in infants less than 1 year old and in older adults over 65 years. Next data from just the year 1979 was analyzed in more detail. Thirteen janguats were selected for analysis based on geographical location :

Central : Bangkok, Smutprakarn, Kanchanaburi, Lopburi, Cholburi
North : Chiengmai, Lampang
Northeast: Nakorn Rachsima, Khon Kaen, Nakorn Panom, Yasothorn
South : Ranong, Nakorn Srithamaraj

Figure 3 shows the total number of cases, and the male/female ratio among those cases, from each of the 13 study janguants.

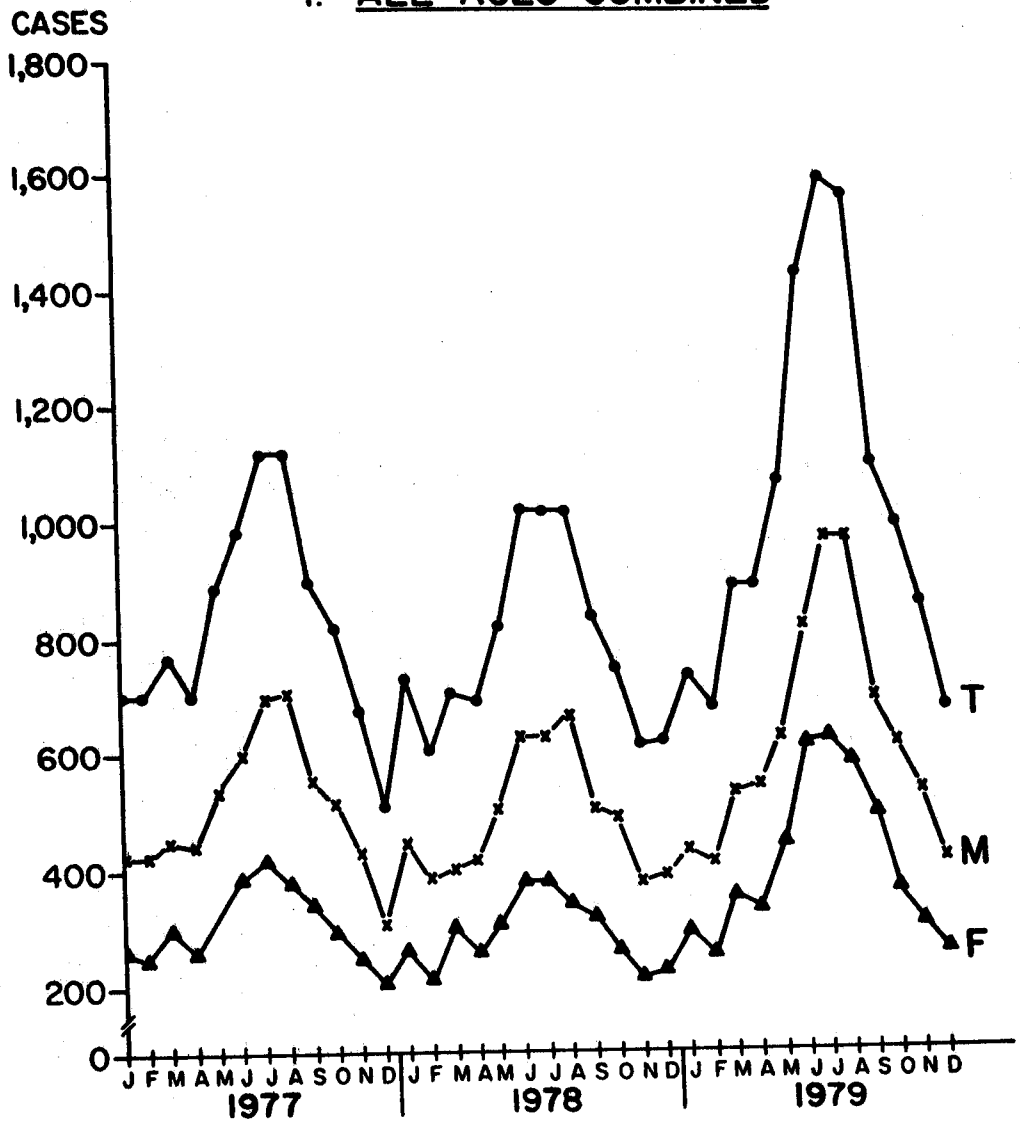
As is shown in Figure 4, A to M, all 13 study janguats tended to show an increased number of cases in the month of July and August as compared to the months of November, December or January. However, in all of the central northern, and southern janguats this tendency is minor compared to the clear peaks seen in all of the northeastern areas. In these provinces the ratio of peak to nadir number of cases was 5 to 10 fold, compared to 1 to 2 fold in the other regions. Analysis by age shows that a strong seasonal cycle is found in children and young adults in the northeastern provinces, while in the other regions seasonality is not strikingly apparent in any age group. In this region it seems apparent that HAV follows a seasonal cycle; the data also suggest but do not clearly prove that HBV and/or HNANB may also follow a seasonal cycle in northeastern Thailand.

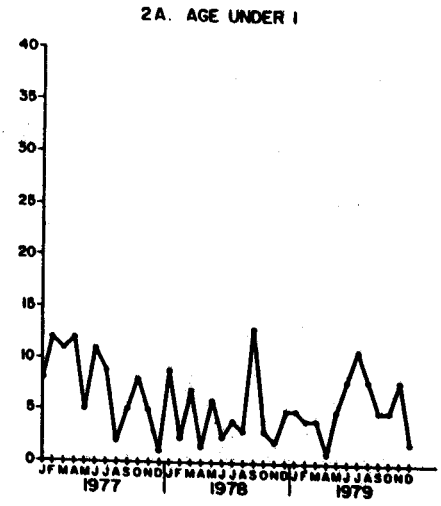
REFERENCES :

1. Center for Disease Control, U.S.A. Morbidity and Mortality Weekly Report, Annual Summary, 1979.

2. Koff RS. Viral Hepatitis; page 69. John Wiley and Sons, New York, 1978.

1. ALL AGES COMBINED




2A. AGE UNDER 1
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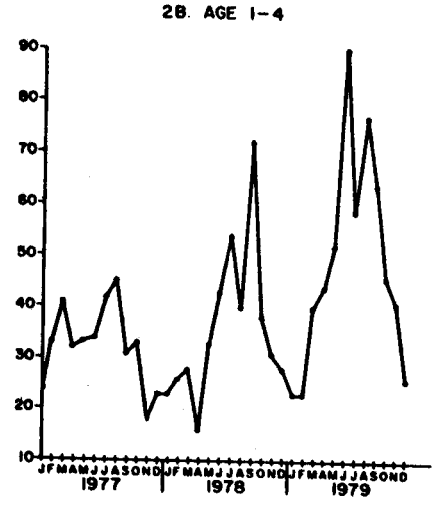
1978
1979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80
70
60
50
40
30
20
10
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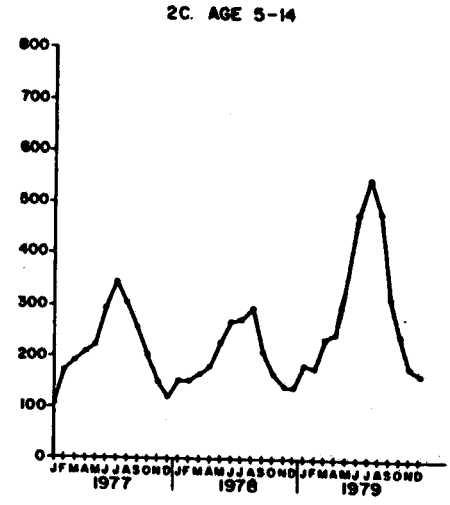
1977
1978
1979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200
100
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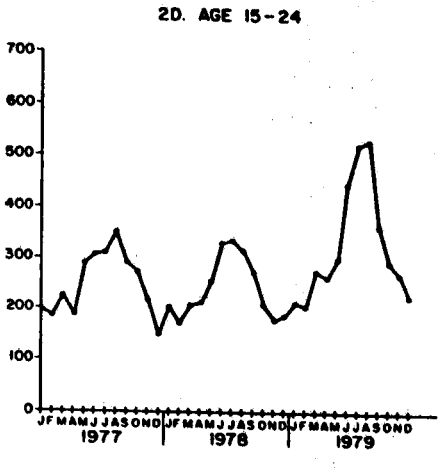
1977
1978
1979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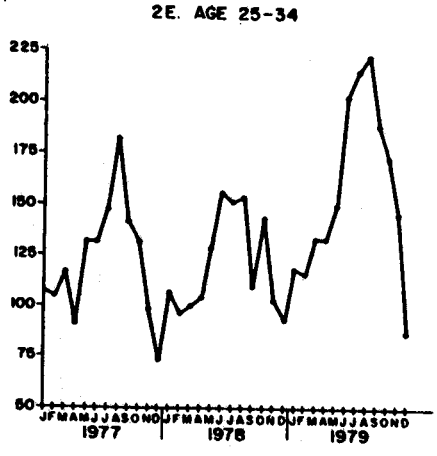
1978
1979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75
50
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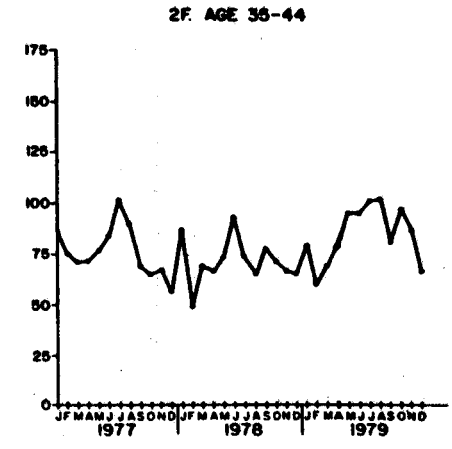
1977
1978
1979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75
50
25
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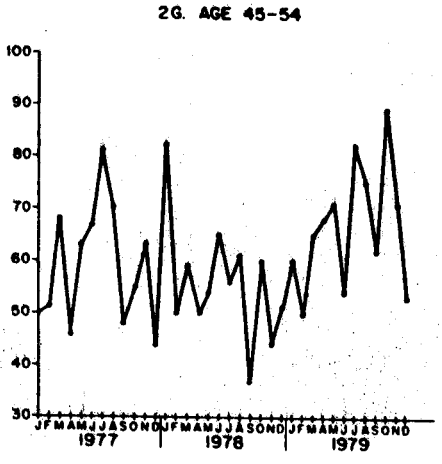
1978
1979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30
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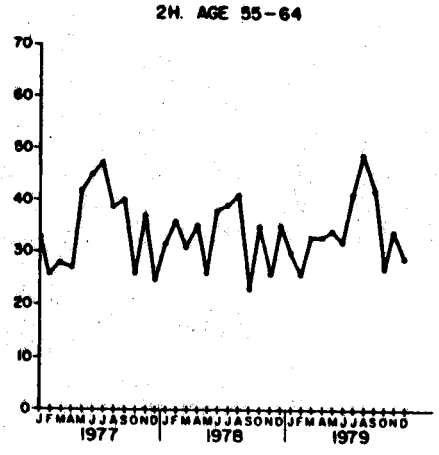
1978
1979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10
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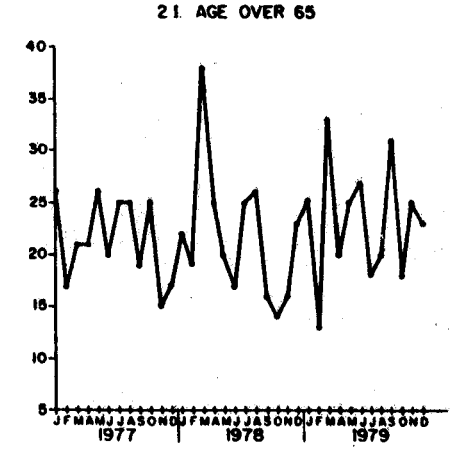
1977
1978
1979


2I. AGE OVER 65
40
35
30
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5
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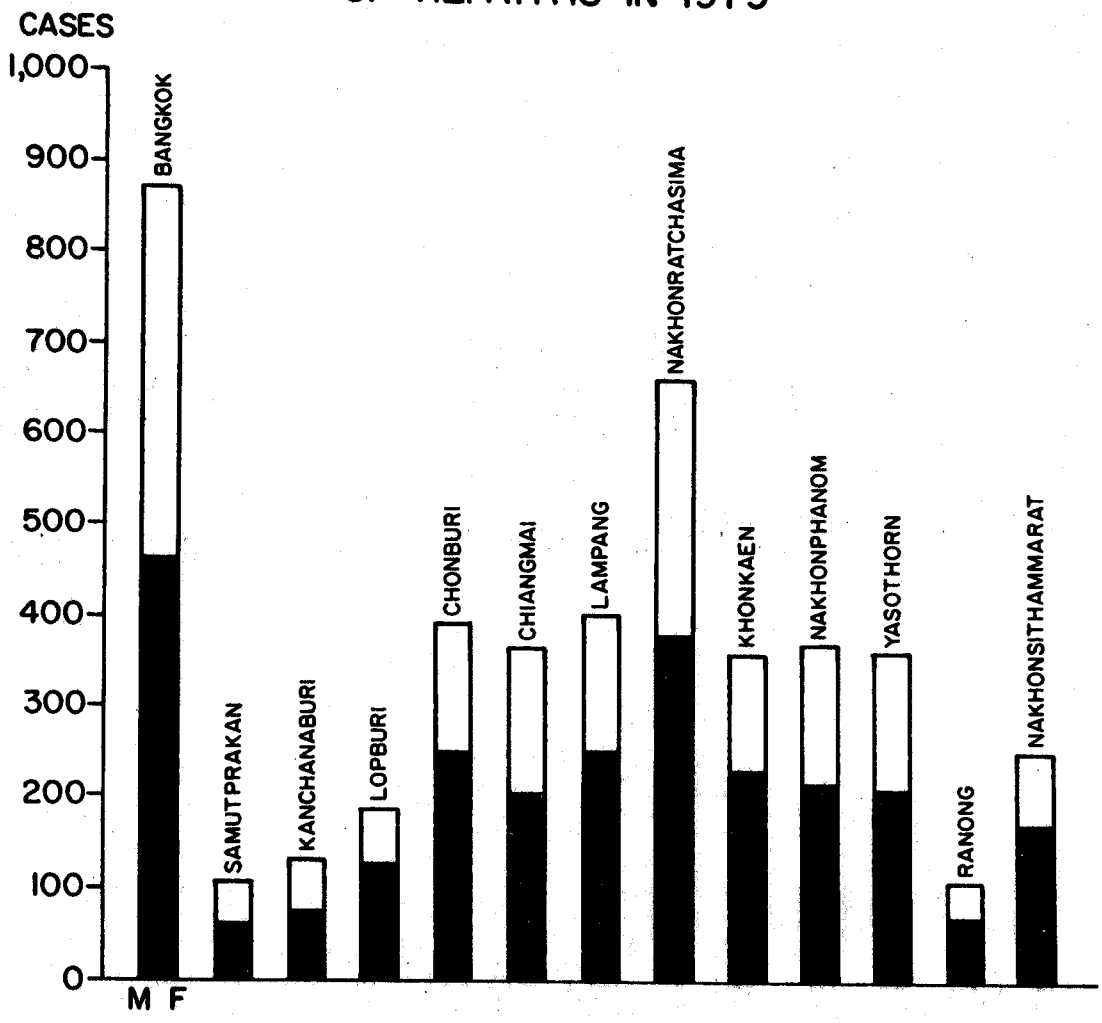
1978
1979

3. HEPATITIS IN 1979



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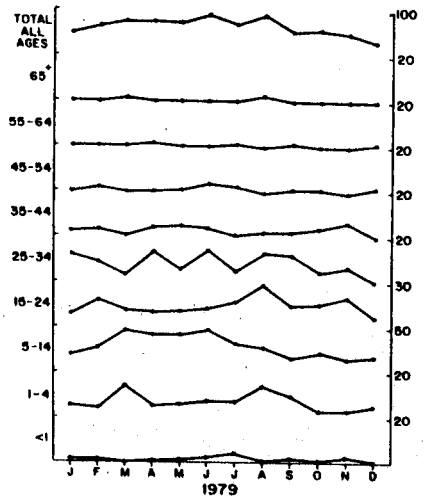

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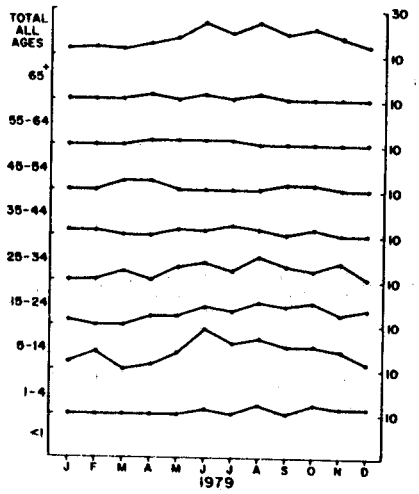

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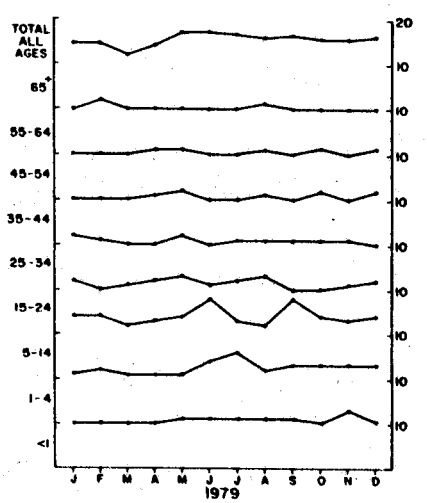

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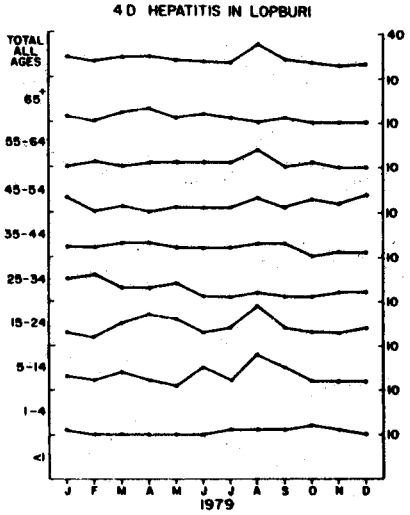

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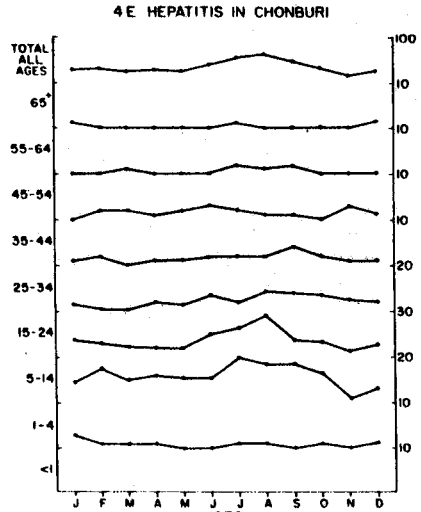

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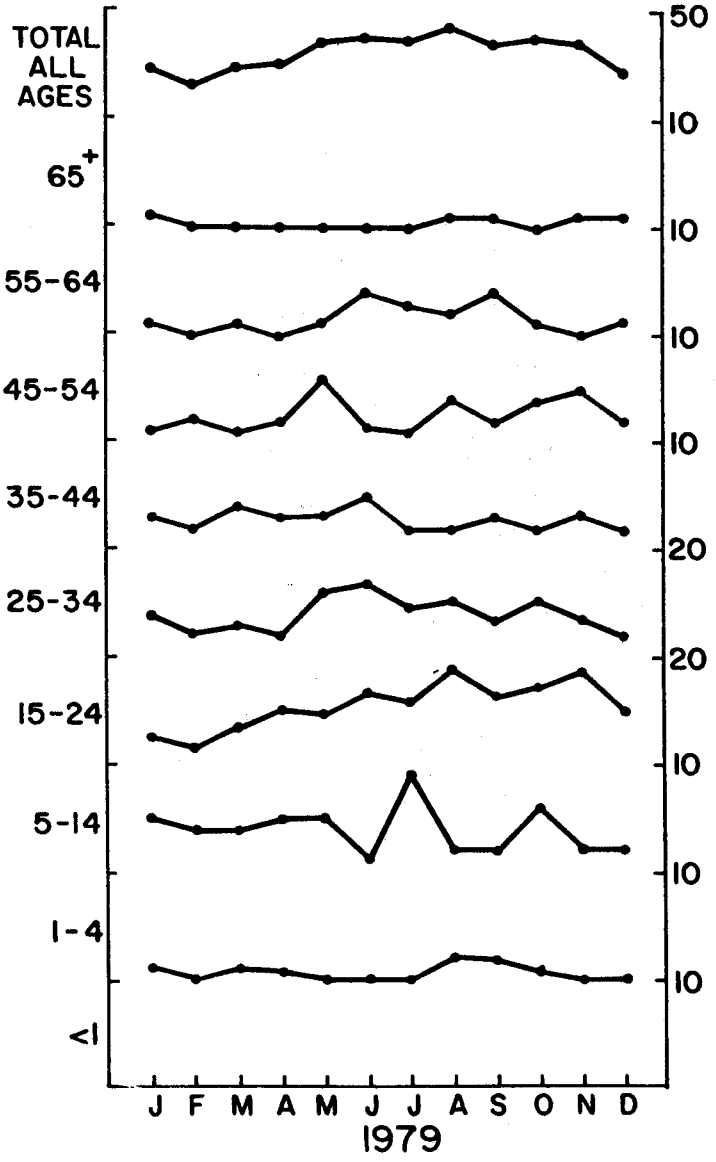

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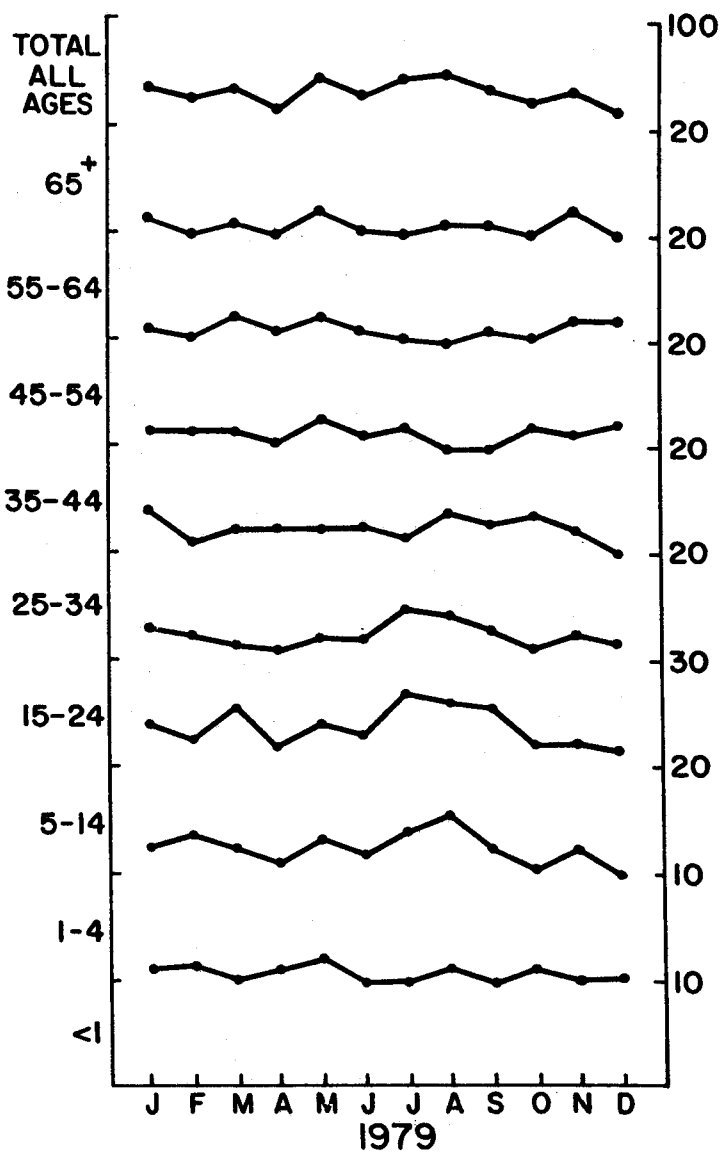

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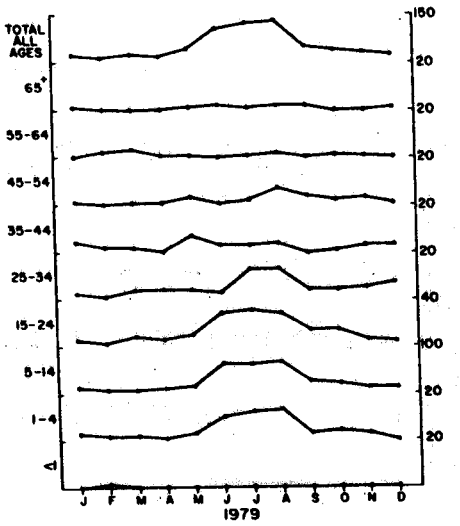

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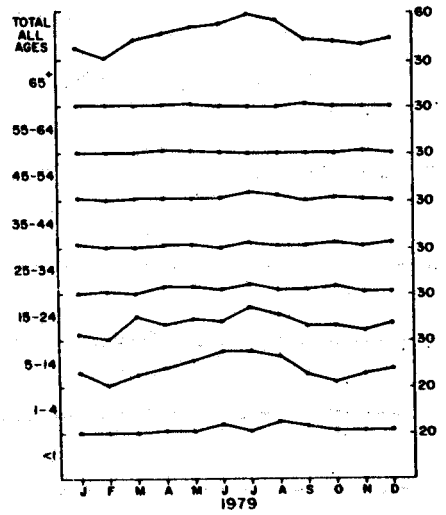

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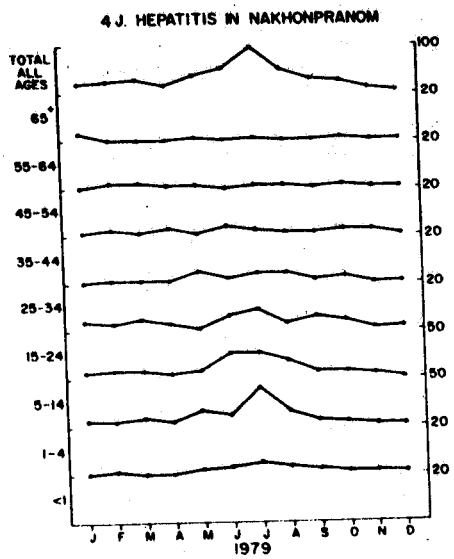

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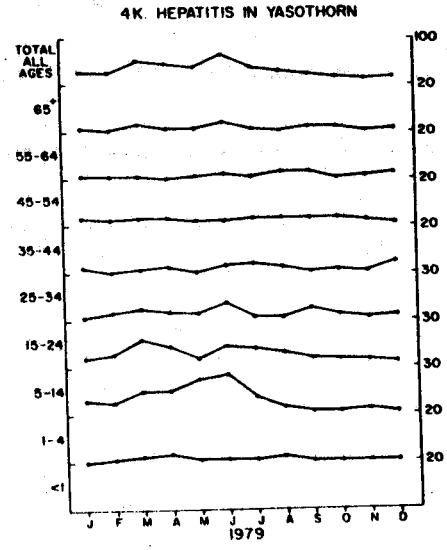

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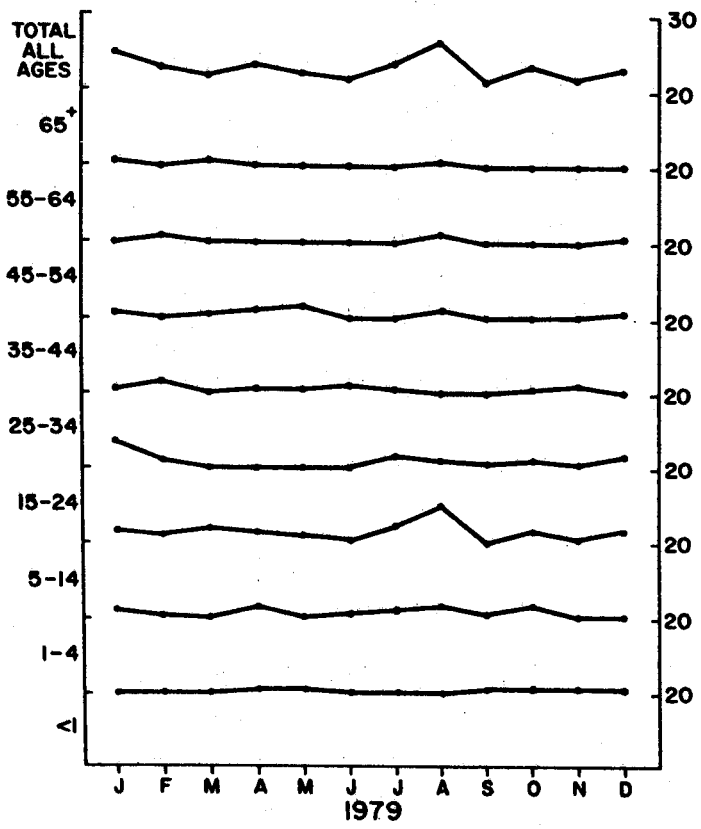

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