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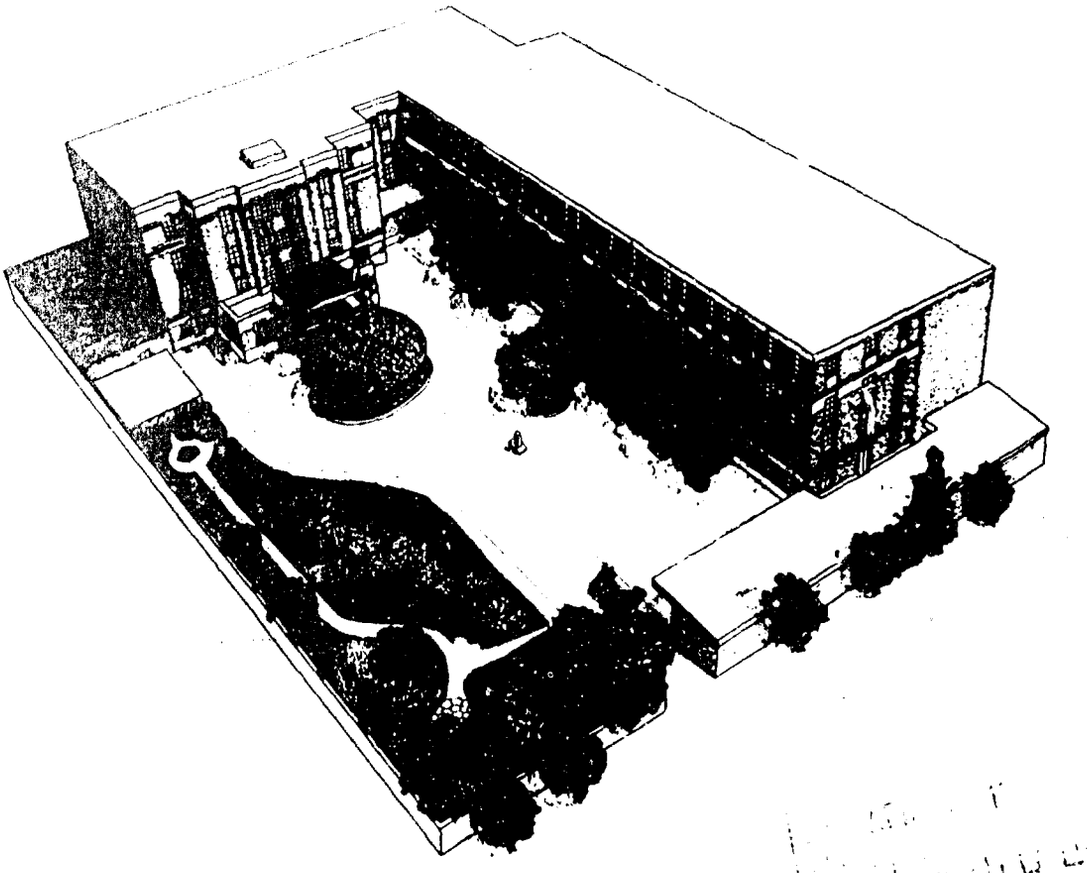

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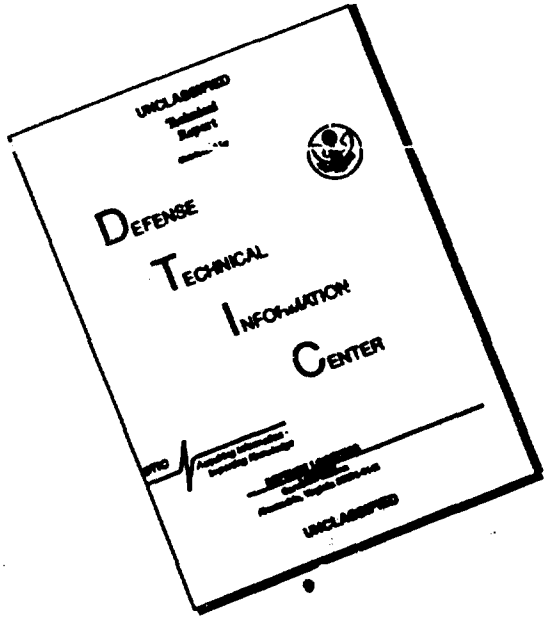

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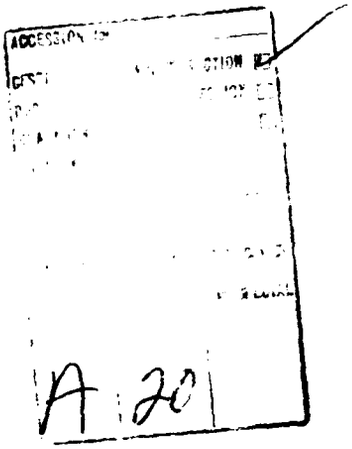

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13 ABSTRACT

ONLY 2 OF 186 FEBRILE HOSPITALIZED PATIENTS IN DJAKARTA HAD LEPTOSPIROSIS. NINE OTHERS HAD PRIOR EXPERIENCE WITH THE DISEASE AS EVIDENCED BY THE PRESENCE OF SERUM ANTIBODIES.

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LEPTOSPIROSIS IN FEBRILE HOSPITAL PATIENTS IN DJAKARTA

R.H. LIGHT, R. NASUTION* and P.F.D. VAN PEENEN

Naval Medical Research Unit No. 2 Djakarta Detachment, APO San Francisco 96356 and
*Rumah Sakit Persahabatan, Djakarta, Indonesia.

INTRODUCTION

Many of the currently recognized *Leptospira* serotypes were first isolated from man in Indonesia (Collier, 1958), but in recent years leptospirosis has been rarely diagnosed clinically here. This study was undertaken to determine if the disease were more prevalent than suspected. All febrile patients admitted to a hospital in Djakarta with signs and symptoms possibly compatible with a diagnosis of leptospirosis between August 1970 and May 1971 were studied with results noted herein.

MATERIALS AND METHODS

Patients were admitted to Rumah Sakit Persahabatan, Djakarta, Indonesia. This hospital is a referral centre for contagious diseases and for patients with fevers of unknown origin. Most are adult, and many are semi-indigent.

Under the direction of one of us (RN), the hospital staff was instructed to include all newly-admitted patients in this study provided they were febrile, did not have a proven diagnosis on admission, and had clinical signs or symptoms which were not completely incompatible with a diagnosis of leptospirosis. Routine physical examinations and histories were always obtained, but, with the exception of special attention to collection of specimens for analysis for leptospirosis as noted below, only the usual nursing care and the usual laboratory procedures were ordered.

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On the day of admission, or within one day, acute specimens were obtained and examined for leptospirosis : ten ml of blood was drawn and a clean urine specimen secured. Both were inoculated into Fletcher's medium at the bedside using undiluted material and 1:10, 1:100, and 1:1000 dilutions in phosphate buffered saline. Serum was separated and examined for the presence of antibodies to leptospirae using the macroscopic agglutination test in Djakarta, and positives were checked using the microscopic agglutination test against reference live antigens at the Naval Medical Research Unit No. 2 (NAMRU-2) laboratories in Taipei. Reference serotypes included : *australis*, *autumnalis*, *ballum*, *bankinang*, *bataviae*, *butembo*, *canicola*, *celledoni*, *cophenhagi*, *cynopteri*, *djasimana*, *georgia*, *gryppotyphosa*, *hebdomadis*, *javanica*, *icterohaemorrhagiae*, *patoc*, *pomona*, *poi*, *pyrogenes*, *semarang*, *sentot*, *tarassovi*, and *wolffi*.

RESULTS

Specimens were obtained from 186 patients during the study. Patients were from all geographic areas of the city of Djakarta, and represented most socio-economic classes, although none was wealthy nor completely indigent. Ages ranged from 13 to 64; there were 105 males and 81 females.

Urine and blood was obtained on admission from all; but second, convalescent, specimens were obtained from only 138. Fourteen patients died, and 34 were discharged before second specimens could be obtained. Nine patients had evidence of past infection with leptospirosis on the basis of serum microscopic agglutination test titers at dilutions of less

than 1 : 400 against the following serotypes: *L. hebdomadis* (1), *L. grippotyphosa* (1), *L. australis* (1), *L. bataviae* (1), *L. icterohaemorrhagiae* (1), *L. pyrogenes* (2), and *L. patoc* (2). Numbers of patients are in parentheses. Only two additional patients had evidence of active leptospirosis, as follows :

Case reports

1. A 30-year-old male street vendor was admitted on 17 July 1970 because of abrupt onset of fever, chills, and diarrhoea two weeks before. Significant findings on admission were bilateral pulmonary rales, pulse 120/min., and fever of 38 C orally. Conjunctivitis, jaundice, splenomegaly, hepatomegaly and signs of meningeal irritation were lacking. Routine laboratory examinations were within normal limits: the white blood cell (WBC) count was 6,200/c.mm, and the urinalysis was negative.

Examination of blood and urine on admission and two weeks later was negative for leptospirae. However, the admission serological test was negative, but the convalescent one revealed antibodies against *L. grippotyphosa* at a dilution of 1 : 200.

The patient improved on treatment with penicillin and streptomycin; he was afebrile after 5 days, and was discharged 32 days after admission.

2. A 20-year-old male electrician was admitted on 29 September 1970 with history of abrupt onset of fever 5 days previous, "red eyes" for one day, and calf pain which limited the patient's ability to walk. The admission physical examination revealed fever of 38 C, jaundice, conjunctivitis, generalized lymphadenopathy, muscle and abdominal tenderness, splenomegaly, and hepatomegaly. The WBC count was 13,600/c.mm with 73% neutrophils and 9% band cells. There was one-plus albuminuria, and the blood urea nitrogen was 400 mg%; total serum bilirubin was 29 mg% (direct 19.4 mg%).

Blood and urine were examined for leptospirae on admission, on 14 October, and on 10 November. All examinations were negative excepting the culture of blood on admission five weeks later, it had viable *L. bataviae*. Admission serum contained no antibodies to leptospirae, but on 14 October there were antibodies against *L. bataviae* at a dilution of 1 : 1600 and against *L. tarassovi* at 1 : 200. The final serum sample had an antibody titer of 1 : 400 against *L. bataviae*.

Despite treatment with tetracycline, and choramphenicol, the patient's condition worsened; there were periodic temperature spikes. One month after admission, petechiae appeared, and these quickly became confluent ecchymoses. The patient expired with renal failure on 13 November 1970.

DISCUSSION

Criteria for inclusion of patients in this study were purposefully nonrestrictive. Nevertheless, the occurrence of only two cases of proven leptospirosis among 186 patients examined indicates that in this population the disease was not a major cause of febrile illness. Only 9 additional patients had antibodies against leptospirosis, indicating a low rate of past exposure in this group.

Case 1, caused by *L. grippotyphosa*, was relatively mild. This serotype is not considered particularly virulent elsewhere (Alston and Broom, 1958). Case 2 caused by *L. bataviae*, presented a severe, classical picture of leptospirosis, and had a fatal outcome.

Approximately one third of the fever patients included in this study had jaundice. Since leptospirosis was excluded as a diagno-

sis, it is presumed that they were cases of infectious hepatitis.

SUMMARY

Only 2 of 186 febrile hospitalized patients in Djakarta had leptospirosis. Nine others had prior experience with the disease as evidenced by the presence of serum antibodies.

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