

During the month of June and August 2000, two children were admitted in the paediatric ward of Holy Family Hospital. These children were in the age group of 7-8 years with the following complaints:

For twenty days previous to their admission to the hospital, they were having fever, loss of appetite, pain in abdomen, vomiting and loose motions, deep yellow coloured urine, yellowish discolouration of skin and eyes and also had breathing difficulty. Both children were treated for 15-17 days and finally diagnosed as **Leptospirosis**.

**LEPTOSPIROSIS:** Leptospirosis is a generalized infection of man and animals caused by spirochetes of the genus leptospira. Two types of leptospirosis present, Anicteric leptospirosis and Icteric leptospirosis.

**EPIDEMIOLOGY:** Leptospirosis is a zoonosis of worldwide distribution. Leptospirosis infects many species of wild and domestic animals that have been isolated from birds, fish and reptiles. The infected animals excrete spirochetes in urine for an extended period of time. The majority of human cases world wide result from occupational exposure to rat contaminated water or soil. Occupational groups with a high incidence of leptospirosis include agricultural workers, persons who live or work in rat infected environment, individuals involved in animal husbandry and laboratory workers.

**PATHOPHYSIOLOGY-** Leptospire enter human body through moist and preferably abraded skin or through mucous membrane. Following the penetration of skin or mucous membrane leptospirosis circulate in the blood stream and spread to all organs of the body. The primary lesion causes damage to the endothelial lining of small blood vessels which results in ischemic damage to the liver, kidney, meninges and muscles.

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[at the time of writing this article]

# Leptospirosis

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After an incubation period of 7-12 days, an initial septicemic phase, leptospire can be isolated from the blood,

cerebrospinal fluid and other tissues. Initial symptoms last for 2-7 days and a second symptomatic or immune phase begins. The immune phase is associated with the appearance of circulating antibodies, despite the presence of these antibodies still leptospire can be found in kidney and urine.

## CLINICAL MANIFESTATION

### According to the text

|                                                                                                                           |                                 |
|---------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| 1. Severe muscular pain                                                                                                   | Present In the Patients present |
| 2. Marked constitutional upset and haemorrhagic manifestation                                                             | not present                     |
| 3. Nephrotic features usually without associated hypertension                                                             | not present                     |
| 4. Jaundice with or without haemorrhage                                                                                   | present                         |
| 5. Jaundice with leucocytosis or a raised ESR                                                                             | Present                         |
| 6. Meningitis with infected or haemorrhagic conjunctivitis or a lymphocytic meningitis with normal biochemical parameters | not present                     |
| 7. Persistent fever lasting upto 3 to 4 weeks                                                                             | present                         |
| 9. Jaundice known as Well's syndrome                                                                                      | present                         |

## DIAGNOSTIC INVESTIGATIONS

### According to the text

|                                                                                              |                                    |
|----------------------------------------------------------------------------------------------|------------------------------------|
| 1. WBC's often elevated when there is liver involvement                                      | Present in the patients Occasional |
| 2. Serum bilirubin levels 8mg/dl                                                             | 6.1mg/dl                           |
| 3. SGOT, SGPT usually shows only slight elevation: 1-45U                                     | 122U2                              |
| 4. Serum Creatinine phosphokinase is frequently elevated: 1-2mg/dl                           | 1mg/dl                             |
| 5. CSF shows moderate pccocytosis increased protein and normal glucose: Cell count 0-10 cumm | 54/cumm                            |
| Differential smear                                                                           | Polymorphs 05%                     |
| Lymphocytes 0-10%                                                                            | Lymphs 95%                         |
| Total protein 20-40 mg/dl                                                                    | Protein 36mg/dl                    |
| Sugar 40-80mg/dl                                                                             | Sugar 44mg/dl                      |
| 6. Urine often shows microscopic Pyuria, hematuria and less often protein urea               | Normal                             |
| 7. Leptospira antibody IgG <5U/ml Negative                                                   | 3.4U/ml Negative                   |
| 5-9 borderline                                                                               |                                    |
| >9U Positive                                                                                 |                                    |
| 8. Leptospira antibody IgM: <15U Negative                                                    | 7 U/ml Positive                    |
| 15-20 Borderline                                                                             |                                    |
| > 20 Positive                                                                                |                                    |
| 9. Chest X- Ray shows Pneumounitis                                                           | Normal                             |
| 10. ESR is often elevated 0-20 mm/hr.                                                        | 09 mm/hr                           |

## PROGNOSIS

Leptospirosis anicteric is generally a self limiting disease lasting up to 1 to 3 weeks and even a relapse may occur. Mortality rate may reach upto 20% or more in elderly patients who have severe kidney and hepatic involvement.

## COMPLICATIONS

Azotemia, Oliguria, Jugular venous distention, Orthostatic changes in blood pressure, Haemorrhage, Purpura, Hemolysis, Gastrointestinal bleeding, Hypoprothrombinemia and Thrombocytopenia

## MEDICAL MANAGEMENT

Leptospira are sensitive to Penicillin, Tetracyclin and Erythromycin.

1. Treatment within first few days of illness may reduce the severity of disease but has little effect if started later on.
2. These antibiotics are usually given for 10 days.
3. Symptomatic and supportive care is

initiated particularly for renal and hepatic failure.

These two children were treated with following medicines:

- Inj. Gentamycin 50 mg BD
- Inj. Ceftriaxone 1.5 gm BD
- Inj. Crystalline Penicillin 6.5 lac BDx 10 days
- Inj. Métrogl 150 mg TDS
- Inj. Rantac 20mg BD
- Cap. Ampicillin 250mg BD
- Tab. Udlin 150mg
- Tab. Aldactone 25mg

## NURSING MANAGEMENT

1. Monitoring of strict fluid intake and output.
2. Promptly report the occurrence of dyspnea, oliguria or haemorrhage.
3. Severely ill patients should be nursed in propped-up position to lessen the risk of secondary pulmonary complications.
4. Patients with vomiting should be managed by I/V fluids and electrolyte replacement.
5. Daily weight and abdominal girth

should be taken for the patients with ascitis.

## PREVENTION

- Avoid the use of contaminated water and soil.
- Use rodent control measures.
- Immunization of dogs and other domestic animals and birds.
- Good environmental sanitation
- Immunization/antimicrobial prophylaxis with doxycycline may be of value to certain high risk occupational groups

## REFERENCES

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# Announcing TNAI Workshop on Management Skills in Nursing Series XVI "Administration and Supervision for Effective Nursing Care" From September 11-18, 2002 At TNAI Headquarters, L-17, Green Park, New Delhi-110016

It is a pleasure to announce The Trained Nurses' Association of India's forthcoming national Workshop on 'Nursing Administration and Supervision for Effective Patient Care' during September 11-18, 2002 at TNAI Headquarters, L-17, Green Park, New Delhi-110016. The overall purpose of the workshop is to strengthen and enhance the administrative and supervisory skills of Nurse professionals working at various levels to enable them to provide effective Nursing Care.

- \* Request for registration will be considered on a first-cum-first-serve basis as there are only limited seats (40)
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- \* Registration fee is Rs. 2000/- per participant (Kindly note the revised rate for the registration fee Rs.2000/- w.e.f. April 2002).
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- \* Local participants Rs. 70 per day, per person (lunch and tea twice).

For Registration Forms, write to: The Coordinator (CEP), TNAI Headquarters, L-17, Green Park, New Delhi-110016. Ph.: 6566665, 6966873 Telefax: (011) 6858304 Email: [tnai@ndf.vsnl.net.in](mailto:tnai@ndf.vsnl.net.in) along with the request for Registration Form, Kindly enclose a self addressed envelop (9"x4") with a postage stamp of Rs. 4 affixed. Last date for receiving filled Registration form is September 7, 2002. However, seats can be booked tentatively by phone/fax/telegram/Email.

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