Leptospirosis

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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- Leptospires 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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After an incubation period of 7-12 days, an initial septicemic phase, leptospires 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 leptospires can be found in kidney and urine.

CLINICAL MANIFESTATION

According to the text	Present In the Patients
1. Severe muscular pain	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	Present in the patients
1. WBC's often elevated when there is liver involvement	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 pecocytosis 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 5-9 borderline >9U Positive	3.4U/ml Negative
8. Leptospira antibody IgM: <15U Negatuve 15-20 Borderline > 20 Positive	7 U/ml 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 BD x 10 days
Inj. Metrogyl 150 mg TDS
Inj. Rantac 20mg BD
Cap. Amplicillin 250mg BD
Tab. Udlin 150mg
Tab. Aldactone 25mg

NURSING MANAGEMENT

1. Monitoring of strict fluid intake and output.
2. Promptly report the occurence 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

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