Coexistence of Leptospirosis with *Falciparum malaria*

Leptospirosis, a disease caused by pathogenic spirochetes. Clinical manifestations of leptospirosis can range from a self-limiting febrile syndrome to a fatal illness (Weil's disease), characterized by hemorrhage, renal failure and jaundice. Now a days, due to disturbances in natural ecological niche, increase in international travel and improvement in diagnostic facilities results in more and early detection of the disease. Due to nonspecific symptoms and similarity in clinical presentations, it is always difficult to differentiate the disease from some other tropical diseases like malaria, typhus, dengue, etc. Here we noted the association of leptospirosis (Weil's disease) with complicated falciparum malaria.[1]

In our ICU, 12 patients of severe leptospirosis [Table 1] were admitted for over a period of six months during monsoon season. Out of them, five patients were initially suspected to be suffering from complicated *Falciparum malaria* as malaria parasites were found in peripheral blood smear. But they were nonresponsive to the therapy of injectable artesunate and there was deterioration of clinical and biochemical parameters. To investigate further, we sent the blood samples for detection of IgM against leptospira as it becomes positive as early as second day of the illness, requires less time than serological agglutination test and extremely sensitive and specific (93%) even when the clinical manifestations may be non-specific. After getting the positive titre of IgM (> 25 u/ml), we immediately instituted ampicillin/amoxycillin along with the anti-malarial treatment. This combination of therapy along with supportive management proved beneficial in four patients with complete recovery. The diagnosis is usually confirmed by microscopic agglutination test (MAT) with fourfold rise in titre starting from 7-10 days of illness, peaks at three to four weeks and it may persist at high levels for many years in leptospirosis. As the agglutination tests are cumbersome to perform and require trained personnel and time to become positive, it was not considered as a basis of adding anti-leptospiral therapy.

Table 1: List of patients diagnosed as leptospirosis (IgM+ve)

Age	Sex	Apache II	Cause of admission	Stay in ICU	RFT	LFT	Coagulopathy	Pulmonary involvement	*Falciparum malaria*	Fate
14	M	23	Unconsciousness	6 days	Normal	Deranged	Normal	No	Negative	Expired
45	F	21	Fever with rashes	7 days	Deranged	Deranged	Deranged	No	Negative	Expired
75	M	13	Fever with GI bleeding	14 days	Deranged	Deranged	Deranged	No (COPD)	Negative	Expired
24	M	16	Encephalopathy	8 days	Deranged	Deranged	Deranged	(?) B/L alveolar hemorrhage	Positive (PBS)	Survived
33	M	16	Encephalopathy with DIC	8 days	Deranged	Deranged	Deranged (hematuria)	(?) B/L alveolar hemorrhage	Positive (PBS)	Survived
35	F	19	Encephalopathy with DIC with shock	7 days	Deranged	Deranged	Deranged (Subconjunctival hemorrhage)	No (PBS)	Positive	Survived
60	M	11	Encephalopathy	4 days	Deranged (PD done)	Deranged	Late onset	(?) B/L alveolar hemorrhage	Positive	Survived
56	M	7	Encephalopathy	7 days	Deranged (PD done)	Deranged	Late onset	No	Negative	Expired
55	F	9	Pancreatitis (↑ amylase, lipase)	11 days	Normal	Deranged	Deranged	No	Negative	Expired
25	M	18	Shock	5 days	Deranged	Deranged	Deranged	No	Positive	Expired
20	F	16	Hepatic encephalopathy	4 days	Deranged	Deranged	Deranged	No	Negative	Survived
55	M	16	Encephalopathy	6 days	Deranged	Deranged	Deranged	No	Negative	Survived

Association of leptospirosis with other diseases like Hepatitis E,[2] Dengue,[3] Hanta virus,[4] Herpes simplex, Burkholderia species is already reported. Leptospirosis was found in the dengue outbreak in Bangladesh.[5] Environmental factors like "monsoon floods" cause our rodent infested sewer systems to overflow into the streets, which coexisted with the "mosquito season" in this region of our country. Thus, it was reasonable to anticipate that a proportion of malaria patients presenting with clouding of consciousness, renal failure, coagulopathy etc. could have coexisting leptospirosis. The simple addition of ampicillin/amoxicillin to the treatment regimen in these patients may go a long way to help to reduce the morbidity and mortality in patients not responding well to treatment for falciparum malaria alone. However in the absence of MAT titre of more than 1:800 against leptospira in this study, the cross reaction of malaria and leptospira antibody could not be ruled out and requires further evaluation.

References

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