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Clinical and laboratory profile of dengue, leptospirosis and malaria in children: a study from Mumbai

In Mumbai, India there is an increase in dengue, malaria and leptospirosis during the monsoon season.[1] Children present with fever, vomiting and hypotension, which makes it difficult to identify the aetiology. Thus, we undertook a study over a period of 1 month from 15 July 2005 to 14 August 2005 to determine the clinical and laboratory features of these illnesses. Thirty two patients with fever, vomiting, diarrhoea, bleeding manifestations, hypotension, hepatomegaly, splenomegaly, jaundice and/or oliguria were registered as probable cases of dengue, leptospirosis or malaria. Diagnosis of dengue was based on a positive IgM capture ELISA test.[2] Diagnosis of leptospirosis was made on a positive leptospira TRI-DOT test and confirmed by a positive leptospira IgM ELISA test. Diagnosis of malaria was based on demonstration of malarial parasites on peripheral blood smear or a positive OptiMAL test. Data were compared using the χ^2 test for proportions and analysis of variance (one way ANOVA) for continuous data.

Eleven patients (34.4%) tested positive for dengue IgM, nine patients (28.1%) tested positive for leptospirosis and seven patients (21.9%) tested positive for malaria. Four (57.1%) of the seven patients with malaria had vivax malaria, two (28.6%) had falciparum malaria and one (14.3%) had mixed falciparum and vivax malaria. Two patients (6.3%) grew *Pseudomona aeruginosa* on blood culture and two patients (6.3%) had dysentery and giardiasis. Co-infection was seen in six (19%) patients. Patients with dengue had the highest packed cell volume (PCV), whereas patients with malaria had a low PCV. Patients with malaria had the lowest platelet count, patients with dengue had a platelet count of less than 100 000/mm^3 and patients with leptospirosis had a near normal platelet count. Blood urea nitrogen (BUN) and creatinine were elevated in patients with leptospirosis. Elevated serum glutamic pyruvic transaminase (SGPT) and hepatomegaly was seen in dengue and splenomegaly was seen in malaria. Other clinical and laboratory features are depicted in table 1.

To conclude, patients with dengue had haemoconcentration, thrombocytopenia, elevated SGPT and hepatomegaly as reported in previous studies.[1 3] Anaemia and splenomegaly in a child with fever and thrombocytopenia was predictive of malaria. Interestingly, patients with leptospirosis presented with fever and non-oliguric renal failure and near normal platelet count. Renal failure in patients with leptospirosis is due to tubulointerstitial renal failure.[4–6] All our patients recovered with penicillin and thus renal biopsy was not carried out. Although, our patients recovered within 4–5 days, those with dengue and malaria required ionotropic support. In addition, patients with dengue also required fresh frozen plasma because of bleeding.

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Table 1 Clinical and laboratory abnormalities in dengue, leptospirosis and malaria

	Dengue	Leptospirosis	Malaria	p value
Age (years)	4.6±3.4	7.6±4.5	7.7±2.5	0.2
PCV on admission (%)	36.7±7.5	30.6±7.4	17±5.6	0.005
WBC (cells/mm^3)	12 111±5980	10 680±3504	8900±1735	0.76
Platelet count (cells/mm^3)	97 555±74 453	116 200±88 302	66 667±62 140	0.02
BUN (mg/dl)	13.5±4.7	28.8±16	23.5±16.2	0.002
Creatinine (mg%)	0.7±0.2	1.8±0.9	0.9±0.2	0.0004
Recovery (days)	5.4±1.5	5.4±1.5	6.3±1.2	0.52
Male	5 (21%)	5 (21%)	2 (8%)	0.28
Female	4 (50%)	0	1 (13%)	
Hepatomegaly	6 (42.9%)	2 (14.3%)	3 (21.4%)	0.03
Splenomegaly	0	0	2 (50%)	0.0005
Elevated SGPT	7 (58.3%)	2 (16.7%)	2 (16.7%)	0.01
Fresh frozen plasma	3 (60%)	0	0	0.01
Ionotropes	3 (42.9%)	0	2 (28.6%)	0.02

Values are mean±SD or n (%). BUN, blood urea nitrogen; PCV, packed cell volume; SGPT, serum glutamic pyruvic transaminase; WBC, white blood cells.

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Survey of telephone calls to tertiary paediatric neurology specialist registrars

Telephone consultations are an important means of delivering primary care to patients.[1 2] However, minimal data are available on telephone advice provided by subspecialists at tertiary level. Due to the shortage of paediatric neurologists in the UK, telephone consultations via specialist registrars (SpRs) could be beneficial both for patient care and trainee experience.

We conducted a prospective study in the paediatric neurology department at St George's Hospital, London, over 3 months from April to July 2006, of all day-time telephone calls to paediatric neurology SpRs. The paediatric neurology department is a tertiary service led by two consultants servicing an area with a population of 3.5 million and 12 district general hospitals. We have excluded direct phone calls to the paediatric neurology consultants and their secretaries. A documentation form was designed to record all information on the telephone calls including details of callers, patient's demographics, problem, advice requested, educational value and outcomes. Calls were regarded as educational if factual knowledge was increased or clinical experience enriched. Outcomes included: (i) referrer's satisfaction determined by a subsequent phone call and (ii) the need for admission to St George's.

There were a total of 45 calls. Fourteen were from other departments within St George's, 27 were from other hospitals, three were from parents and one was from a GP. Most external referrals were from a hospital lacking a paediatrician with expertise in epilepsy. Thirty calls came from SpRs and eight from senior house officers (SHOs). Monday was the busiest day (31% of calls). Twenty four calls related to known patients.

The most common presenting problem was epilepsy (15 cases, 33.3%), followed by newly developed seizures (seven cases) (fig 1). A study by Letourneau *et al* in a hospital based paediatric neurology clinic showed similar results (35.6%).[3]

The majority (39/45) of calls were of educational value. Caller satisfaction was 100% in the cases discussed with a consultant (41 cases). The remaining four cases were redirected