Clinical presentation and outcome of severe falciparum malaria in Eastern Nepal

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**Background:** Malaria is endemic in 65 out of 75 districts of Nepal and >70% of the total population are at risk of the disease. The clinical presentations of severe and complicated malaria vary.

**Methods:** Clinical profile, biochemical parameters and outcome in 138 adult patients of malaria requiring hospital admission in BP Koirala Institute of Health Sciences hospital, a tertiary care hospital in eastern Nepal during April 2002 to April 2005 were studied.

**Results:** Mean age of the patients was 33 ± 16 yrs with majority (n = 88) being in age group of 15 to 34 years. 67% of the patients were from terai belt (southern plain area). Mean duration of febrile illness was 13 ± 9 days at the time of presentation and 54% patients had recent history of travel to India. Hepatic dysfunction (39%), anemia (30%), hypotension (18%), metabolic acidosis (16%), convulsion (11%), hypoglycemia (8%) and 22% (n = 30) had acute renal failure according to WHO criteria. Three or more complications was present in 32%. Apart from antimalarial therapy, dialysis support and mechanical ventilation was provided to 22 and 25 patients respectively. All the patients who died (23%) had ≥3 complications.

**Conclusion:** Death from complicated malaria is high. Delayed in diagnosis leading to multiple complications might have contributed to high mortality.

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APACHE III score as a prognostic marker in severe malaria in a tertiary care hospital from south India

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**Background:** Malaria is a most common parasitic infection with transmission in 103 countries affecting >1 billion people and causing between 1 and 3 million deaths each year. Falciparum malaria causing severe malaria is one of the commonest infections with high mortality in India in spite of potent chemotherapy. APACHE III is the most recent version of the scoring system developed by Knaus and colleagues. So far no studies are available using APACHE III in severe malaria in Indian setting.

**Aims:** Prospective clinical study of APACHE III score as a predictor of mortality in patients with severe Malaria.

**Methods:** 41 patients with diagnosis of severe Malaria admitted in Kasturba Hospital Manipal, tertiary care hospital during the period of May 2006 to June 2008. Statistics:SPSS 15.3 was used to perform statistics, depending on the normality of distribution curve and skew deviation mean or median was compared using Independent T test or Non parametric t test such as Mann Whitney’s were used respectively.

**Results:** During 2 year study period (May 2006- June 2008) 41 patients with Severe Malaria were admitted in different ICUs of Kasturba Hospital, of whom 6 were females and 35 were males. 11 patients succumbed to their illness and 30 survived. There was no significant difference in age and parasite index in patients who survived and succumbed to illness. Clinical parameters like tachycardia, hypotension and hypoxia were significantly seen in patients who succumbed to illness. Neurological obtundation was seen in all 11 dead patients at presentation is another independent variable predictive of severe malaria Among lab parameters thrombocytopenia, raised BUN, Creatinine, low blood sugars were significant predictive factors for mortality. Most patients 10 out of 11 had lung involvement with ARDS required ventilation. Mean APACHE III scoring among alive patients was 50.94 ± 17.25 and among dead patients was 100.18 ± 26.86. The scores were compared by using Independent T test and the scores were highly statistically significant (p < 0.005)

**Conclusion:**

1. APACHE III is very good prognostic marker in predicting mortality in severe malaria
2. Among individual clinical parameters tachycardia, hypotension, hypoxia oliguria, altered sensorium were associated with significant mortality
3. Among lab parameters raised BUN, Serum creatinine, Hypoglycemia thrombocytopenia and chest X ray shadows (ARDS) predict independently high mortality and need for ICU monitoring and aggressive treatment.

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Poor impact of the primary health care (PHC) on malaria control in rural communities of Southeast Nigeria

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**Background:** Malaria is a disease of poverty and low socio-economic status and these conditions abound in developing countries. This means that the successful implementation of malaria control programmes requires a certain level of basic health services. In countries where malaria is a serious impediment to socio-economic progress, emphasis should be on malaria control rather than eradication. This will reduce the burden of the disease and pave the way for the speeding up of socio-economic development which may in the long run contribute to a future eradication of malaria. The resurgence of malaria is a global phenomenon. Most studies on malaria have dealt with clinical, laboratory and entomological aspects. Few studies have dealt with human factors.

**Methods:** 2400 volunteers from all age groups from selected endemic rural communities of southeast Nigeria were screened for malaria parasitaemia from June 2008 to August 2009, using the thin and thick smear microscopy. Following this, 16 close-ended questionnaire items were generated and administered on 600 adults, mainly heads of households to assess their knowledge, attitudes, and practices on the various aspects of malaria transmission, management and control, thus evaluate the impact of the
Primary Health Care on malaria control in the study areas.

Results: The results showed the following percentage infection in the various age-groups: 0-11 months (24%); 1 year-2 years (43%); 2-4 years (80%); 5-9 years (74%); 10-14 years (71%); 15 years and above (68%). A total of 1440 persons were positive for Plasmodium falciparum parasitaemia, representing an average infection of 60%. In the questionnaires, 93% of the respondents did not associate malaria with mosquito bite; 60% were not carrying out any form of vector control; only 7% had adequate knowledge of the management of fever, and 15% had any knowledge of government action towards the control of malaria.

Conclusion: The study revealed poor implementation of the Primary Health Care as it concerns malaria control at the peripheral level. The remoteness of some rural communities and lack of easy accessibility makes it difficult for health programmes to get to the grassroot. There is the need to train a large number of Village-Based Health Volunteers, who should step up community mobilization and health education campaigns. Parents should know how to prevent and manage malaria fever in their children.

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Malaria parasitemia in surgical patients in University of Calabar Teaching Hospital, Nigeria

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Background: Malaria is endemic in Nigeria. Surgical patients in our environment are predisposed to perioperative anemia and postoperative pyrexia due to malaria. We carried out a prospective study of malaria parasitemia in surgical patients to evaluate the need for routine malaria parasite (MP) test for surgical patients in an endemic area.

Methods: Fifty adult elective surgical patients were tested preoperatively for MP by Giemsa staining of thick blood smear. Pre-operative hematocrit was also recorded and patients were followed up for postoperative pyrexia.

Results: Forty-four patients (88%) were positive for MP. Twenty-one of these (47.7%) were anemic with mean hematocrit of 33.3%. None of the 6 patients who were MP negative was anemic (mean hematocrit 42%). Thirty-six patients had surgery and 20 of these had postoperative pyrexia for which 15 required antimalarial medication for resolution. All 15 had tested positive for MP.

Conclusion: There is significant malaria parasitemia among surgical patients in our environment. This contributes to the perioperative anemia and postoperative pyrexia and therefore the morbidity of our surgical patients. Routine preoperative MP test would facilitate prompt diagnosis and treatment of malaria, anemia, and postoperative pyrexia in this group of patients, thus reducing morbidity.

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Improving estimates of malaria intervention coverage from household surveys using GPS data

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Background: Standard indicators of malaria prevention interventions, such as ownership and use of insecticide-treated mosquito nets (ITNs), are restricted to the population at risk of getting malaria. Household survey measurements of those indicators, however, are typically reported at the national level, including areas with little or no malaria transmission. Moreover, many surveys are not conducted during the high malaria transmission season. For these reasons, estimates of coverage by malaria interventions are often biased downward. This paper quantifies the effect of these biases by examining two coverage measures for universal coverage: 1) household possession of at least one ITN (HP1+) and 2) at least one ITN for every two usual residents (HP1/2), by

A) Using GPS data to correlate these measures with levels of malaria endemicity and seasonality, and
B) Recalculating coverage estimates based on the population at risk, taking into account the timing of the survey and endemicity in the area.

Methods: Data come from 15 recent sub-Saharan Demographic and Health Surveys (DHS) or Malaria Indicator Surveys (MIS). GPS location of household cluster is linked with Malaria Atlas Project maps to evaluate the malaria transmission zone and season.

Results: The percentage of HP1+ households varies from 3.4% in Ethiopia to 53.3% in Zambia, and the percentage of HP1/2 households varies from 0.4% in Ethiopia to 18% in Zambia. If the estimates are restricted to households located in endemic areas, coverage is considerably higher. For example, HP1/2 universal coverage is 6% nationwide in Namibia, but ranges from 2% in areas with no malaria to 11% in highly endemic areas (with parasitemia >40%). Rates of ITN use also differ substantially: in Uganda, 11% of the population in highly endemic areas interviewed during the malaria season slept under ITNs, compared to only 3% in areas with no malaria.

Conclusion: Estimates of ITN ownership and use based on household surveys are strongly affected by the location of survey clusters and the month of the interview. Taking these factors into account is recommended to improve the monitoring of progress toward achieving national goals and to inform in-country programmatic decision-making.

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