RISK FACTORS OF SHOCK IN SEVERE FALCIPARUM MALARIA

Brendan J Arnold[1], Noppadon Tangpukdee[1], Srivicha Krudsood[2] and Polrat Wilairatana[1]

[1]Department of Clinical Tropical Medicine, [2]Department of Tropical Hygiene, Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand

Abstract. The objective of this study was to determine the risk factors for the development of shock in adult patients admitted with severe falciparum malaria. As an unmatched case-control study, the records of patients who were admitted to the Bangkok Hospital for Tropical Diseases, Thailand, between the years 2000-2010, were reviewed. One hundred patients with severe falciparum malaria and shock, and another 100 patients with severe malaria but without shock were studied. Demographics, presenting symptoms, physical observations, and laboratory data of these patients were analyzed. Five risk factors for the development of shock were identified: female gender (OR 6.16; 95% CI 3.17-11.97), red cell distribution width (RDW) >15% (adjusted OR 2.90; 95% CI 1.11-7.57), anorexia (adjusted OR 2.76; 95% CI 1.03-7.39), hypoalbuminemia (adjusted OR 2.19; 95% CI 1.10-4.34), and BUN-creatinine ratio >20 (adjusted OR 2.38; 95% CI 1.22-4.64). Diarrhea was found to be a protective factor (adjusted OR 0.33; 95% CI 0.14-0.78). Metabolic acidosis was only weakly correlated to mean arterial blood pressure on admission (r_s = 0.23). Female gender was the strongest risk factor for the development of shock. We concluded that female gender, RDW >15%, anorexia, hypoalbuminemia, and BUN-creatinine ratio >20 were risk factors of shock development in severe falciparum malaria.

Keywords: malaria, shock, risk factor

Correspondence: Polrat Wilairatana, Department of Clinical Tropical Medicine, Faculty of Tropical Medicine, Mahidol University, 420/6 Ratchawithi Road, Ratchathewi, Bangkok 10400, Thailand.
Tel: +66 (0) 2354 9159; Fax: +66 (0) 2354 9158
E-mail: polrat.wil@mahidol.ac.th