Abstract

Malaria parasites are known to mediate the induction of inflammatory immune responses at the maternal-foetal interface during placental malaria (PM) leading to adverse consequences like pre-term deliveries and abortions. Immunological events that take place within the malaria-infected placental micro-environment leading to retarded foetal growth and disruption of pregnancies are among the critical parameters that are still in need of further elucidation. The establishment of more animal models for studying placental malaria can provide novel ways of circumventing problems experienced during placental malaria research in humans such as inaccurate estimation of gestational ages. Using the newly established olive baboon (*Papio anubis*)-*Plasmodium knowlesi* (*P. knowlesi*) H strain model of placental malaria, experiments were carried out to determine placental cytokine profiles underlying the immunopathogenesis of placental malaria. Four pregnant olive baboons were infected with blood stage *P. knowlesi* H strain parasites on the one fiftieth day of gestation while four other uninfected pregnant olive baboons were maintained as uninfected controls. After nine days of infection, placentas were extracted from all the eight baboons through cesarean surgery and used for the processing of placental plasma and sera samples for cytokine sandwich enzyme linked immunosorbent assays (ELISA). Results indicated that the occurrence of placental malaria was associated with elevated concentrations of tumour necrosis factor alpha (TNF-á) and interleukin 12 (IL-12). Increased levels of IL-4, IL-6 and IL-10 and interferon gamma (IFN-ã) levels were detected in uninfected placentas. These findings match previous reports regarding immunity during PM thereby demonstrating the reliability of the olive baboon-*P. knowlesi* model for use in further studies.