Correspondence

T-Helper Cell 2–Driven Immunity in Pregnancy as a Determinant of Antiplasmodial Antibody Half-life Through Regulation of Fc-Receptor–Mediated Clearance

TO THE EDITOR—In a recent prospective cohort study, it was found that the half-life of antibodies against *Plasmodium falciparum* antigens was longer in infected pregnant women, compared with uninfected pregnant women [1]. This phenomenon could not be explained by exposure to *P. falciparum* infection. An important factor in determining the response to infections during pregnancy is the dominance of T-helper cell 2 (Th2)–driven immunity and the effects of its associated cytokine interleukin 4 (IL-4) [2]. Antibodies are cleared from the circulation after interaction of their Fc segment with Fc receptors on cell populations, including the mononuclear phagocyte system, mainly in the liver and spleen [3]. Receptors for immunoglobulin G (IgG) are categorized into subtypes hFc-RI, II, and III, which bind IgG subclasses, with a high affinity for IgG1 and IgG3 but not IgG2 and IgG4 [4]. The expression of all 3 receptor types is downregulated by IL–4 [5]. A reduction of the clearance of immunoglobulins by downregulation of Fc receptors may explain the differences in the half-life of antibodies in infected pregnant women, compared with uninfected pregnant women, because infection will trigger increased IL-4 release. The long half-life of antibodies during pregnancy may be a temporary state of reduced clearance induced by the Th2 dominance during pregnancy and not carry over to future pregnancies. Further research needs to explore whether the antibody response to merozoite antigens is particularly short-lived because the response predominantly involves IgG3 or IgG1 antibodies with a higher affinity to Fc receptors, leading to exceptionally rapid clearance. Future research also needs to investigate the correlation between Fc-receptor density on circulating monocytes and half-life of antibodies to *P. falciparum* in pregnant women.

Note

Potential conflicts of interest. Author certifies no potential conflicts of interest.

The author has submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

Michael Eisenhut
Luton and Dunstable University Hospital NHS Foundation Trust, Luton, United Kingdom

References


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Correspondence: Michael Eisenhut, MD, Luton and Dunstable University Hospital NHS Foundation Trust, Lewsey Rd, Luton LU40DZ, UK (michael_eisenhut@yahoo.com).

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