1013

CLINICAL DEVELOPMENT OF A VAR2CSA-BASED PLACENTAL MALARIA VACCINE PLACMALVAC: DECRYPTION OF THE ANTIBODY ACQUISITION AGAINST THE VACCINE CANDIDATE ID1-ID2

Guillaume Escriou[1], Firmine Viwami[2], Atikatou Mama[2], Saadou Issifou[2], Yannelle Dossou[2], Achille Massougbodji[2], Adrian Luty[1], Jean-Philippe Chippaux[1], Morten Agertoug Nielsen[3], Ali Salanti[3], Philippe Deloron[1], Nicaise Tuikue Ndam[1]

[1]Institut de Recherche pour le Développement, MERIT UMR D216 Mère et enfant face aux infections tropicales, Paris, France, [2]Centre d'Etude et de Recherche sur le Paludisme Associé à la Grossesse et à l'Enfance (CERPAGE), Faculté des Sciences de la Santé, Université d'Abomey-Calavi, Cotonou, Benin, [3]Department of International Health, Institute of International Health, Immunology and Microbiology, University of Copenhagen, Copenhagen, Denmark

Placental malaria (PM) is an important cause of maternal anemia, stillbirth and delivery of low birth weight babies, the latter representing a major risk factor for infant mortality in Africa. Many studies have underlined the key role of the parasite protein VAR2CSA in placental malaria (PM), the leading PM vaccine candidate. A specific immune response against VAR2CSA is acquired during the first pregnancies and reduces the harmful effects of placental malaria during subsequent pregnancies. This has led to the development of a candidate vaccine by an EU-funded consortium (PlacMalVac project) which is currently under Phase I trial in Germany and Benin.As part of the PlacMalVac project, we quantified anti-Id1-Id2 IgG and subtype responses to the VAR2CSA subunit vaccine candidate using ELISA in a cohort of Beninese pregnant primigravidae enrolled before the beginning of pregnancy. Clinical and parasitological data were collected monthly from 37 nulligravid women who became pregnant and followed through to delivery. Similar antibody measurements were performed in samples from a sub-cohort of 470 pregnant women of different parities who were followed up throughout pregnancy in the stoppam study. Preliminary analysis shows that antibody levels are dependent on pregnancy, parity status, and are associated with the occurrence of infection during pregnancy. These analyzes highlight the key role of anti-Id1-Id2 IgG3 in protection against placental malaria.

1014

ANTIBODIES TO PLANT-PRODUCED *PLASMODIUM FALCIPARUM* SEXUAL STAGE PROTEINS EXHIBIT TRANSMISSION BLOCKING ACTIVITY

R. Mark Jones, Jessica Chichester, Stephen Tottey, Konstantin Musiychuk, Joey Norikane, Stephen Streatfield, Vidadi Yusibov

Fraunhofer-Center for Molecular Biotechnology, Newark, DE, United States

Transmission blocking vaccines are considered a critical component in the overall strategy for control and eventually elimination of malaria world-wide. Sexual-stage proteins expressed by *Plasmodium falciparum*, Pfs230 and Pfs25, are the main transmission blocking antigens moving through clinical trial development. Antibodies generated upon vaccination with either of these results in interruption of sporogonic development in the mosquito, and transmission to the next host. Using a plant based transient expression system, we have produced Pfs25 and Pfs230 fused to various carrier proteins in *Nicotiana benthamiana*, purified and characterized the proteins, and evaluated the vaccine candidates in animal models for generation of transmission reducing antibodies (TRA)/ transmission blocking antibodies (TBA). The Pfs25 and Pfs230 vaccine candidates are expressed at high levels, and induced TBA that persist up to 6 months post immunization. These data demonstrate the potential of the new malaria vaccine candidate and also support feasibility of expressing *Plasmodium* antigens in a plant-based system.

1015

QUANTIFICATION OF BED-NET LOSS AND LEAKAGE FOLLOWING A MASS-DISTRIBUTION CAMPAIGN ON BIOKO ISLAND USING THE CAMPAIGN INFORMATION MANAGEMENT SYSTEM (CIMS)

Dianna Hergott[1], Thomas Stabler[2], Jackie Cook[2], Guillermo Garcia[3], Aveika Akum[3], Immo Kleinschmidt[2], Christopher Schwabe[1]

[1]Medical Care Development International, Silver Spring, MD, United States, [2]London School of Hygiene & Tropical Medicine, London, United Kingdom, [3]Medical Care Development International, Malabo, Equatorial Guinea

Between December 2014 and June 2015, the Bioko Island Malaria Control Project (BIMCP) distributed 149,287 long lasting insecticidal nets (LLIN) to 61,000 households on Bioko Island, achieving an Island-wide coverage of at least 1 LLIN per household of 87%. Of the 87% of households contacted who received a net, universal coverage (at least one net per two people) was achieved in 89% of them, for an Island-wise universal coverage of at least 77%. The BIMCP planned and implemented the distribution campaign through a tablet-based Campaign Information Management System (CIMS) that contains a georeferenced listing of all households on the Island, linked to a unique household identifier. Using the CIMS, data were collected on household size, number of pre-existing nets, and number of nets distributed. Between August and October of 2015, approximately 7 months after the mass distribution, the BIMCP carried out a Malaria Indicator Survey (MIS), taking a representative sample of all communities in the Island. The MIS included questions about bed-net ownership and usage. The MIS showed that net ownership had dropped by 22% between the time of distribution and the 2015 MIS, with 69% of households reporting owning at least one LLIN in the MIS. Universal coverage dropped by 45%, with only 42% of households reporting having at least one net per every two people. Using the geo-referenced unique household identifier, we were able to compare net ownership in 4,992 households. Fifty seven percent of these households reported having at least one less net at the time of the MIS than were distributed during the distribution campaign, and 34% reported at least two fewer nets. While many households reported a loss of nets, others reported a gain of nets. An in-depth analysis of the net code inscribed during the distribution and reported in the MIS, which reveal the original community LLINs were distributed to, will be conducted to investigate possible redistribution of nets. Additionally, results from the 2016 MIS will be analyzed to quantify net loss one year following the mass-distribution and better evaluate the characteristics of households with net gain and loss.

1016

DYNAMICS OF ENTOMOLOGICAL INOCULATION RATES FOLLOWING INDOOR RESIDUAL SPRAYING IN MALI

Moussa B. Cisse[1], Dereje Dengela[2], Richard Oxborough[2], Bradford Lucas[2], Abdourhamane Dicko[3], Jules Mihigo[4], Aboubacar Sadou[5], Kristen George[6], Christen Fornadel[6], Laura Norris[6], Allison Belemvire[6], Suzanne Powell[7], Raymond F. Beach[8]

[1]U.S. Agency for International Development AIRS Project, Abt Associates, Bamako, Mali, [2]U.S. Agency for International Development AIRS Project, Abt Associates, Bethesda, MD, United States, [3]Programme National de Lutte contre le Paludisme, Bamako, Mali, [4]U.S. President's Malaria Initiative, U.S. Centers for Disease Control and Prevention, Bamako, Mali, [5]U.S. President's Malaria Initiative, U.S. Agency for International Development, Bamako, Mali, [6]U.S. President's Malaria Initiative, U.S. Agency for International Development, Washington, DC, United States, [7]U.S. President's Malaria Initiative, U.S. Centers for Disease Control and Prevention, Atlanta, GA, United States, [8]Entomology Branch, U.S. Centers for Disease Control and Prevention, Atlanta, GA, United States

Entomological monitoring is used to assess the impact of indoor residual spraying (IRS) on entomological indicators such as the entomological