MALARIA JOURNAL

ORAL PRESENTATION Open Access

Dynamics of *P. vivax* clones in a cohort of children with or without primaquine treatment at baseline

Rahel Wampfler[1,2*], Leanne Robinson[3,4], Natalie Hofmann[1,2], Andreea Waltmann[3,5], Inoni Betuela[4], Mariabeth Silkey[1,2], Peter Siba[4], Tom Smith[1,2], Ivo Mueller[3,6], Ingrid Felger[1,2]

From Challanges in malaria research: Core science and innovation
Oxford, UK. 22-24 September 2014

P. vivax was detected by PCR in 45% of children aged 5-10 years from our study area in Papua New Guinea (PNG). 504 children were randomized into 2 arms according to Primaquine (PQ) treatment or not at baseline and actively and passively followed for 9 months. We genotyped all *P. vivax* infections, the majority of these being multi-clone infections. All blood samples positive for *P. vivax* by qPCR were tested for gametocyte carriage by targeting *pvs25* transcripts. Primaquine reduced the risk of *P. vivax* infections by 80%. The multiplicity of infection and the density of asexual *P. vivax* stages were not significantly different in both treatment arms. The number of new clones (force of blood-stage infection) was 2.38 ± 0.17 per person per year-at-risk in the PQ-arm compared to 8.04 ± 0.41 in the Placebo arm ($P < 0.05$). The duration of infections did not differ between the treatment arms, with 73 days [95% CI: 33-849] and 68 days [95% CI: 40-247] in the PQ or Placebo arm, respectively. Detectability of *P. vivax* clones was low with 0.26 ± 0.06 and 0.24 ± 0.04 in the PQ and Placebo arms. PQ-treated children had a 75% lower risk of carrying gametocytes compared to Placebo recipients. *P. vivax* positive children in both arms were equally likely to show gametocyte positivity. We conclude that *P. vivax* relapses contribute significantly to the high burden of *P. vivax* infection and transmission in PNG. All other infection dynamics parameters were consistent between treatment arms and apparent relapses behave like new infections.

Authors' details
[1]Swiss Tropical and Public Health Institute, Basel, Switzerland. [2]University of Basel, Basel, Switzerland. [3]Walter and Eliza Hall Institute, Parkville, Australia. [4]PNG Institute of Medical Research, Madang & Maprik, Papua New Guinea. [5]Department of Medical Biology, University of Melbourne, Victoria, Australia. [6]Centre de Recerca en Salut Internacional de Barcelona (CRESIB), Barcelona, Spain.

[1]Swiss Tropical and Public Health Institute, Basel, Switzerland
Full list of author information is available at the end of the article

Published: 22 September 2014

doi:10.1186/1475-2875-13-S1-O24
Cite this article as: Wampfler *et al.*: Dynamics of *P. vivax* clones in a cohort of children with or without primaquine treatment at baseline. *Malaria Journal* 2014 **13**(Suppl 1):O24.