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 Betuela⁴, Mariabeth Silkey^{1,2}, Peter Siba⁴, 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. Primaguine 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 \pm 0.06 and 0.24 \pm 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

¹Swiss Tropical and Public Health Institute, Basel, Switzerland. ²University of Basel, Basel, Switzerland. ³Walter and Eliza Hall Institute, Parkville, Australia. ⁴PNG Institute of Medical Research, Madang & Maprik, Papua New Guinea.

¹Swiss Tropical and Public Health Institute, Basel, Switzerland Full list of author information is available at the end of the article ⁵Department of Medical Biology, University of Melbourne, Victoria, Australia. ⁶Centre de Recerca en Salut Internacional de Barcelona (CRESIB), Barcelona, Spain.

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.

Submit your next manuscript to BioMed Central and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

) BioMed Central

Submit your manuscript at www.biomedcentral.com/submit



© 2014 Wampfler et al; licensee BioMed Central Ltd. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The Creative Commons Public Domain Dedication waiver (http://creativecommons.org/publicdomain/zero/1.0/) applies to the data made available in this article, unless otherwise stated.