...to Plasmodium falciparum infection in patients with homozygous sickle cell disease in western Kenya.

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Abstract:

Sickle haemoglobin (HbS) is considered to be protective against malaria. Malaria is fatal in homozygous sickle cell (HbSS) disease. In a cross-sectional survey by alkaline. Hb-electrophoresis of 766 residents of Western Kenya near Lake Victoria, 20 were found to have HbSS disease, 120 sickle cell trait (HbAS) and 626 the normal genotype (HbAA). Blood slides for malarial parasites (MPs) were performed in 728 cases, i.e. 592 HbAAs, 116 HbASs and all 20 HbSSs. Malaria parasites were found in 261 (35.8%) HbAAs, 42 (5.8%) HbASs and 4 (0.5%) HbSSs. Malaria prevalences per genotypic group were 44.1% (261 out of 592) in HbAAs, 36.2% (42 out of 116) in HbASs, and 20% (4 out of 20) in HbSSs. The relative risk of malarial infection was 0.33 in the HbSSs compared to both HbAAs and HbASs. It seems that the protection conferred by HbS against malaria is more marked in HbSS disease than in HbAS and is HbS-content related, and that the balanced polymorphism in the HbS-malaria relationship is maintained-by higher mortality risk of HbAAs due to malaria and high mortality risk of HbSSs caused by complications of HbSS.