Summary

WHO has recommended for the first time a vaccine against malaria, the RTS,S/AS01E vaccine. The combination of RTS,S/AS01E vaccine and the seasonal malaria control (SMC) has significantly improved the combination efficacy against clinical malaria, severe malaria and even against anaemia. However, it has been suggested that this sustained protection over five years of children as young as 5-17 months of age at enrolment may impair the building of acquired immunity against malaria and put such protected individuals at enhanced risk when the protection is stopped. Thus, we proposed to investigate the risk of malaria in children previously exposed to the high effective SMC plus malaria vaccine RTS,S/AS01 since the age of 5 months up to 59 months. Overall, we proposed a prospective passive follow up of the children with nested case control studies (uncomplicated and severe malaria).

Vaccine Efficacy in children who had received the RTS,S/AS01E vaccine alone compared to children who had previously received SMC alone was 29.7% (95% CI 17.4 to 40.1), 22.8% (95% CI 7.3 to 35.8) and 23.9 (95% CI 6.8 to 37.8) in the second , third and fourth years after the final, fourth, booster dose of vaccine and 26.0% (95% CI 15.2 to 35.4) over the three years of the post-intervention period combined.

Despite the negative impact of combining SMC with RTS,S/AS01E seen in the post-intervention period, children in the combination group still had a higher level of protection against uncomplicated cases of malaria during the intervention and post-intervention periods combined compared with children who received SMC alone or RTS ,S/ AS01E ,alone with a PE of 29.4% (20.8 to 37.1) and 20.0% (10.12 to 28.8) respectively.

The most frequent clinical presentation of severe malaria cases of severe malaria among trial children in Burkina Faso, where the overall incidence of severe malaria was higher than in Mali (237 vs 77 cases), was severe anaemia which was recorded in 101 cases (42%) in Burkina Faso compared to only 13 (12%) in Mali. In contrast, neurological presentations (cerebral malaria and repeated convulsions) accounted for a higher proportion of cases in Mali than in Burkina Faso 26/77 (36%) vs 49 (21%) in Burkina Faso.

Despite some residual protection from malaria during the post intervention in the group who received seasonal vaccination during the intervention period, the incidence of clinical episodes of malaria in children in all three intervention groups remained very high beyond the age of five years. This indicates the importance of providing further protection to children beyond this age through extension of the duration of chemoprevention