Summary

Background

Malaria and anaemia are the leading causes of morbidity and mortality in children in sub-Saharan Africa. Previous studies have shown that in areas of seasonal malaria transmission, intermittent preventive treatment of malaria in children (IPTc), targeting the transmission season, reduces the incidence of clinical malaria. However, these studies were conducted in other African countries. We have investigated the effect of intermittent preventive treatment with sulphadoxine-pyrimethamine on anaemia and malaria in children in an area of intense, prolonged, seasonal malaria transmission in Nigeria.

Methods

182 children aged 12–59 months from the study area were individually randomised to receive three doses of placebo or sulphadoxine-pyrimethamine (SP) monthly over a period of four months. The primary outcome measures were episodes of anaemia (Hb<10.0 g/dl), malaria or severe malaria detected through active and passive surveillance.

Results

Monthly sulphadoxine-pyrimethamine reduced the incidence of malaria and anaemia compared to placebo. The protective efficacy for malaria, severe malaria and Anaemia were 74%, 71% and 95% respectively. There were statistically significant reductions in the episodes of malaria, severe malaria and anaemia in the intervention group compared to the placebo group.
For clinical malaria; at 2\textsuperscript{nd} visit 23.8\% had malaria in the intervention group compared to 76.2\% in the placebo group. (p-value 0.011). At 3\textsuperscript{rd} visit 28.6\% had malaria in the intervention group compared to 71.4\% in the placebo group (p-value 0.014). At 4\textsuperscript{th} visit 10.7\% had malaria in the intervention group compared to 89.3\% in the control group (p-value 0.0005).

Kaplan Meier test was used to compare the time it takes for clinical malaria among participants in the study groups. The time of visit was measured in time intervals of 28 days in between visits. It showed that participants in the intervention group had significant lower probability of having clinical malaria than in the control group with in the earlier time of study. (Breslow test: \(x^2=8.5573, df=1, p=0.003\)).

Tarone-Ware (\(x^2=8.763, df=1, p=0.003\)) and Mantel Cox (\(x^2=8.825, df=1, p=0.003\)) test revealed that the control group have a higher probability of having clinical malaria than the intervention group in between the 2\textsuperscript{nd} and 3\textsuperscript{rd} visit and at the end of the time frame.

For Anaemia; At 2\textsuperscript{nd} visit 3.3\% had anaemia in the intervention group compared to 13.2\% in the control group (p = 0.015). At 3\textsuperscript{rd} visit 0.0\% had anaemia in the intervention group compared to 14.3\% in the control group. (p = 0.0005). At 4\textsuperscript{th} visit 0.0\% had anaemia in the intervention group compared to 34.1\% in the control group (p = 0.0005).

For Severe malaria; At 2\textsuperscript{nd} visit 50\% had severe malaria in both the intervention and control group (p=1.000). At 3\textsuperscript{rd} visit 33.3\% and 66.7\% had severe malaria in the intervention and control group respectively (P=0.560). At 4\textsuperscript{th} visit, none (0.0\%) in the intervention group had severe malaria compared to four (100\%) in the control group (p=0.043).

\textbf{Conclusion}
IPTc is safe and efficacious in reducing the burden of malaria in an area of Nigeria with a prolonged, intense malaria transmission season.