

Impact of Community Intermittent Preventive Treatment in Pregnancy (C-IPTp) approach on the uptake of IPTp3+: a randomized controlled trial in Karagwe, Tanzania

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Abstract

Background: The low uptake of Intermittent Preventive Treatment in Pregnancy (IPTp) during pregnancy leads to millions of pregnant women who are not protected from malaria, hence contributing to preventable maternal and neonatal morbidity and mortality.

Objective: To determine the impact of the Community IPTp approach on increasing uptake of 3 or more doses of IPTp (IPTp3+).

Method: Pregnant women in the intervention group received Sulphadoxine-Pyrimethamine (SP) in the community. The control group continued to receive the IPTp at the health facility during routine antenatal care (ANC). All pregnant women received IPTp by Directly observed treatment (DOT).

Results: Of the pregnant women in the intervention group, 98.5% received IPTp3+ compared to 55.7% in the control group.

Conclusion: C-IPTp is an effective approach of increasing the uptake of IPTp3+ among pregnant women compared to using routine ANC visits.

Key words: IPTp3+, Sulphadoxine-Pyrimethamine, Tanzania, pregnancy, malaria.

Introduction

Malaria in pregnancy, albeit preventable, is a major problem in many endemic areas.^[1] The effects of malaria in pregnancy include low birth weight, premature delivery, anaemia and stillbirth.^[2, 3] In sub-Saharan Africa the prevalence of stillbirths resulting from pregnancy associated with malaria is up to 20%.^[4] A major risk factor for infant mortality is low birth weight,^[5] accounting for about 100,000 infant mortalities in Africa in 2004.^[6] Provision of Intermittent Preventive Treatment in Pregnancy (IPTp) is recommended by the World Health Organization at each scheduled ANC visit in the 2nd and 3rd trimesters; these doses are administered at least four weeks apart by Directly Observed Treatment (DOT).^[7]

Despite a high ANC visit coverage, IPTp uptake by pregnant mothers is still low in Tanzania.^[8] Tanzania's National Malaria Control Programme (NMCP) in 2014 set a target of increasing the percentage of mothers reporting a live birth in the previous two years who received two or more doses of IPTp from 32% to 60% in 2016 and 80% by 2020.^[9] In the Tanzania Demographic Health Survey 2015-2016 report, 35% pregnant mothers received at least two or more IPTp doses,^[10] however in 2017 the Malaria Indicator Survey (MIS) report showed that the percentage of women who received two or more doses of IPTp was 56%.^[11] The gap between the achievement in uptake of IPTp and the target, regardless of the efforts of scale up, represents the missed and unseen opportunities.

Table 1. Characteristics of participants who received IPTp in the community and at health facility.

| Characteristic | Intervention group n=273 n (%) | Control group n=361 n (%) |
|--------------------------|--------------------------------|---------------------------|
| Age years | | |
| 15-20 | 58 (21.2) | 73 (20.2) |
| 21-34 | 140 (51.3) | 186 (51.5) |
| 35-49 | 75 (27.5) | 102 (28.3) |
| Parity | | |
| Primipara | 97 (35.5) | 118(32.7) |
| Multipara | 176 (64.5) | 243(67.3) |
| Education level | | |
| No formal education | 5 (1.8) | 9(2.5) |
| Primary | 178 (65.2) | 247(68.4) |
| Secondary | 90(33) | 105(29.1) |
| Number ANC Visits | | |
| <4 visits | 32 (11.7) | 27(7.5) |
| ≥4 Visits | 241(88.3) | 334(92.5) |

Table 2. Coverage of IPTp in the Intervention and Control groups

| IPTp uptake | Intervention group n=273 n (%) | Control group n=361 n (%) |
|-------------|--------------------------------|---------------------------|
| Only IPTp1 | 0 (0) | 29(8) |
| IPTp2 | 4(1.5) | 131(36.3) |
| IPTp3+ | 269(98.5) | 201(55.7) |

Many studies of IPTp uptake have not reported on the impact of Community IPTp (C-IPTp) administration to increase adherence by pregnant women, although some have reported a higher percentage of ANC attendance as a means to increase IPTp uptake.^[12]

The objective of this study was to assess the impact of C-IPTp in increasing IPTp3+ coverage compared to using routine ANC visits to increase coverage of IPTp.

Method

This study was conducted between December 2018 and September 2019. Four health centres of Karagwe district were assessed for study eligibility based on three factors: availability of a routine outreach program, trained staff and a reliable supply of SP for at least three months. Two health centres which met eligibility criteria were selected randomly one as a control and another as intervention. The intervention facility cared for women from three

villages while the control facility cared for women from four villages in the catchments area. All villages in both control and intervention group have similar geographical characteristics and the distance from each village to the particular health centre is less than five kilometres.

Women who had already received the first dose of SP during a routine ANC visit and gave informed consent were eligible to participate in the study by receiving subsequent doses in the Community during planned outreach visits. Two enrolled or registered nurses visited the villages in planned two days a week an outreach service which was famously known in Kiswahili language as “Huduma za mkoba”, SP were administered by DOT. Both facilities were given tablets and all staff were trained on how to collect the data using a designed Excel spreadsheet and on eligibility criteria for administering SP to pregnant women. Demographic data including parity, age and address were rerecorded during the uptake of the first dose of SP at the health facility. In the control area IPTp was given during scheduled routine ANC visits.

Results

Table 1 shows the age, parity, education, ANC visit, parity and distribution of women who received IPTp in the community and at the health facility. These factors were very similar between the groups.

As indicated in Table 2 the IPTp3+ uptake was much higher (98.5%) in the intervention group than in the control group (55.7%).

Discussion

C-IPTp effectively increases the uptake of IPTp3+. The coverage of C-IPTp in this study was higher than the national target of IPTp3+ uptake which is 80%.^[9] The effectiveness of C-IPTp in increasing the uptake of IPTp by pregnant women was also reported in the study which was conducted in Malawi where the coverage increased from 41.5% to 82.9%.^[13]

Several studies have evaluated the effectiveness of distributing SP by Community Health Workers (CHWs) and revealed the positive outcome of the C-IPTp approach and promoted ANC attendance because more women were receiving the reminder information of their appointments.^[13,14,15] In Nigeria the C-IPTp approach that utilized CHWs to encourage pregnant women to attend ANC and IPTp uptake reported the increased number of pregnant women who received two or more doses of SP.^[14]

Another qualitative study that was conducted in Uganda to explore ways to improve IPTp uptake demonstrated that pregnant mothers would feel more comfortable when they receive SP and information from their CHWs with whom they have established rapport,^[15] also noted that the approach is cost effective and could increase both

IPTp uptake and ANC attendance.^[15] The interviewed women in the same study reported that they preferred the community based approach because they do not have to travel to the facility which always requires husbands' permission.^[15]

This study did not assess the impact of the C-IPTp approach on other ANC indicators such as ANC attendance which was reported to decrease in a similar study in Southern Malawi ^[13] where many women, after receiving IPTp in the community, ignored the ANC follow up visit believing that community services replaced the health facility visit. Transportation was another limitation because the nurses from the intervention facility used the motor vehicles hired from the community which are not suitable especially during the rainy season; they also used ambulances which contributed delays if the ambulance was being used to refer a patient.

Conclusion

C-IPTp is an effective approach to increase the uptake of IPTp3+ by pregnant women. It reaches many women living far from health facility or who are disabled and cannot attend monthly appointments.

This study provides government and stakeholders the evidence for the need to review the IPTp policy in order to reach the national target. The C-IPTp can be integrated with other already existing community outreach services such as the Expanded Programme on Immunization (EPI). However, further studies should be conducted to identify factors which influence the effectiveness of C-IPTp compared to routine IPTp.

Competing interests: None.

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