ORIGINAL ARTICLE

Effect of Mebendazole Therapy during Pregnancy on birth outcome in patients presenting to Ch. Rehmat Ali Memorial Teaching Hospital

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ABSTRACT

Background: Routine antenatal mebendazole therapy in pregnancy can be of great help in reducing the prevalence of anemia. At the moment this drug is not a widely used because of a lack of data on the safety of the drug especially in our population.
Aim: To assess the effect of mebendazole therapy during pregnancy on birth outcome.
Methods: We observed the effect of mebendazole on the birth outcomes in Ch. Rehmat Ali teaching hospital to the pregnant patients during second and third trimester of pregnancy. We observed the birthweight (low being classified as <2000g), perinatal mortality, still births, major congenital abnormalities and anemia (Hb < 10g/dl) among babies of mothers who had taken mebendazole during pregnancy.
Results: The rate of the proportion of low-birthweight babies 5.7% and anemia 16.2% was very much less effected while prevalence of congenital abnormalities, still birth and perinatal mortality was none in patients taking mebendazole. Mebendazole therapy during pregnancy is not associated with a significant increase in adverse effects in term of congenital defects, low birth weight, anemia and still births. This therapy could offer beneficial effects to pregnant women in developing countries, where intestinal helminthiases are endemic.
Keywords: Mebendazole, pregnancy, birth outcome, anemia, hemoglobin level, low birth weight

INTRODUCTION

The pinworm is a nematode that mostly infects children. In Pakistan, the prevalence among children of worm infestation was found to be 77.31% of which 64% were the female children[1]. This worm easily spreads across the family members and a common cause of anemia in females especially in pregnant ladies. The studies conducted in Babile, east of Ethiopia and Waikagul, recorded 6.7% and 18.5% respectively of the yearly prevalence of hookworm infestation[2,3]. Worldwide, hookworms infect an estimated 440 million people. Although most of those affected are asymptomatic[4,5], approximately 10% experience anemia due to this worm infestation. The pregnant female is already susceptible to anemia due to excessive need of diet and consuming less resulting in clinical anemia which becomes more severe in the presence of hookworm infestation. This emphasis the need of treating the pregnant patients for helminth infestations properly and timely.

The World Health Organization (WHO) recommends any of the following 4 drugs for the treatment of hookworm infection in pregnancy: albendazole, levamisole, mebendazole and pyrantel[6]. Because of the ease of use of their single-dose format, the benzimidazoles (albendazole and mebendazole) are the drugs most widely used in helminth control programs targeted to school-aged children and pregnant women[7,8,9].
Despite the recognized benefits of deworming, it is possible that fear of adverse birth outcomes has limited its inclusion in routine antenatal care.

Mebendazole is said to be the treatment of choice for the treating pinworms during pregnancy. And treating the pregnant ladies with anti helminths lead to increase in mean Hb levels as well clinical wellbeing of the patient[10]. Treatment of these worms in pregnancy has also been shown to reduce early infant mortality[11] apart from the prevention of anemia.These drugs, administered after the first trimester, have been found to be safe and effective, having few and minor, if any, side effects[12,13,14].

There are number of international studies in pregnant women which have shown that there is no adverse effect of mebendazole on pregnancy or birth outcome[15,16,17,18]. But mebendazole is considered category C pregnancy drug. So we aim this study to look for the adverse effects on birth outcome of the drug so that we may be sure to use it safely in pregnancy in our population.

The objective of the study was to find the effect of single dose of mebendazole therapy during pregnancy on pregnancy outcome

MATERIAL & METHODS

This quasi experimental trial was conducted on pregnant patients coming to Ch. Rehmat Ali Memorial Hospital, Lahore during the period of May 2017 to May 2018 were enrolled in the study after written informed consent. Second & third trimester of pregnancy and patients having no previous treatment with Mebendazole in previous 6 months were included in the study. Patients having 1st trimester of pregnancy and severe anemia (Hb < 7g/dl) requiring treatment with Iron/Blood transfusion were excluded from the study.

Each of the participant was given a single dose of mebendazole 500mg and her particulars were noted. Each was then followed till delivery approx. 5 months. Assessments were made at baseline (second trimester), at third trimester and at the delivery. The parameters including birth weight, any major congenital abnormality, still birth, perinatal mortality and improvement in Hb were noted. Low birth weight was defined as baby weight <2000gms at birth. While anemia was defined as Hb level < 10g/dl at time of delivery.

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RESULTS

In this study, the mean age of patients was 29.8 years. There were 36(17.1%) female of age 20-25years, 79 (37.6%) were aged between 26-30years while 95(45.2%) aged between 31-35 years. There were 121(57.6%) females who belonged to low socioeconomic status while 45(21.4%) belonged to middle class family and 44 (20.95%) belonged to high socioeconomic status. Out of 210 females, 76(36.2%) were residing in a rural area while 134 (63.8%) resides in urban area. There were 196 (93.3%) were Muslim females while 14(6.7%) were Christians. There were 66 (31.4%) primiparous and 144 (68.6%) were multiparous (Table 1).

In the whole sample, only 2(0.95%) had still birth, but there was no perinatal mortality or congenital malformation (0%). Mean Hb of females at baseline was 10.7±0.6g/dl which remain almost unchanged (10.6±0.5g/dl) after treatment with single dose of mebendazole. At time of delivery, 176 (83.8%) females had Hb in normal range (10-14g/dl), while only 34 (16.2%) had Hb=7-10g/dl, but no female had Hb below 7g/dl. The mean birth weight of neonates was 2429±49grams. There were 198 (94.3%) neonates with normal birth weight while there were only 12 (5.7%) neonates who were LBW (<2000grams) (Table 2).

Table 1: Maternal baseline characteristics

Characteristics	Frequency	Percentage
Age(years)		
20-25	36	17.1%
26-30	79	37.6%
31-35	95	45.2%
Mean Age	29.8	
Socioeconomic Status		
Low	121	57.6%
Middle	45	21.4%
High	44	20.95%
Residence		
Rural	76	36.2%
Urban	134	63.8%
Religion		
Islam	196	93.3%
Christian	14	6.7%
Parity		
Primi	66	31.4%
Multi	144	68.6%

Table 2: Effects of Deworming on Birth outcomes

Still Birth	02	0.95%
Perinatal Mortality	00	0
Congenital malformation	00	0
Mean Baseline Hb level G/dL	10.7 g/dl	
Mean Hb level after treatment	10.6g/dl	
10-14g/dl	176	83.8%
7-10 g/dl	34	16.2%
<7 g/dl	00	0
Mean Birth weight	2429gms	
Normal birth weight ≥2000gms	198	94.3%
LBW <2000gms	12	5.7%

DISCUSSION

Anemia predisposes to severe morbidity in pregnant women and reduces tolerance to normal blood loss during child birth, which can be devastating. Still births and low birth weights are also related to anemia as well. Apart from other causes, hookworm is an important cause of anemia causation especially in endemic areas and low socioeconomic parts with poor hygiene [19-20] like Pakistan.

Mebendazole was chosen as a treatment of choice for management for deworming the pregnant patients because it is very poorly absorbed from the gut (only 2-10%) so having very little effect on the baby[21] and its beneficial effect during pregnancy shown by Atukorala et al[22] and low incidence of congenital effects[23].

A double-blind randomized controlled trial of antenatal mebendazole to reduce low birthweight in a hookworm-endemic area of Peru [24]and a study done by de silva NR at el[25] showed almost the same results as our study though we didn't have controls but our study showed that incidence of still birth is negligible with mebendazole use in pregnancy.

There came out no teratogenic effect of antihelminth after its use in 2nd and 3rd trimester which also correlates with a Hungarian study indicating no correlation of their use and incidence of teratogenic or fetotoxic effects[26].

A 2001 study in Sierra Leone showed that albendazole treatment during pregnancy successfully reduced the prevalence of maternal anemia which is a bit in contrast to our study which showed a stable level of Hb even after with the treatment of the mebendazole showing neither increase nor decrease in mean Hb level.

So our study showed that single use of Mebendazole use in pregnancy after 1st trimester is safe and effective leaving no adverse effects on both fetus and mother. There are though soe other tjings to consider like hygiene of the surroundings, mother with good washing/scrubing of hands, useable things. Proper deworming of the family members especially the children must be ensured. Eradication of the larva reservoirs be done. So all these measures will aid in community health as primary prevention is should always be at the top.

CONCLUSION

Mebendazole therapy during pregnancy is not associated with a significant increase in adverse effects in term of congenital defects, low birth weight, anemia and still births. This therapy could offer beneficial effects to pregnant women in developing countries, where intestinal helminthiases are endemic.

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