ORIGINAL ARTICLE

Practices of Pica among Pregnant Females and Associated Outcomes in Newborn and Pregnant Women

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ABSTRACT

Aim: To find out the females practicing pica and its effects in newborns.
Study Design: Cross-sectional descriptive study
Place and Duration of Study: Department of Community Medicine, Kabir Medical College Peshawar from 1st May 2021 to 31st December 2021.
Methodology: Three hundred and eighty six pregnant women from 15 to 49 years were enrolled. The WHO standards for new born weight were used to measure normal and underweight babies and associated factors causing anemia and pica practicing among females. A semi-structured questionnaire was used to collect data on socioeconomic conditions, family size, maternal education, parity, gravidity and complication during and after delivery.
Results: The prevalence of maternal anemia 73.3% in mothers of aged 15 to 49 years. Antenatal visits, medications used during pregnancy, and intake of non-food (pica) items showed significant results with $p<0.05$ and showed strong association between maternal factors and newborn weight. Age, ethnicity, socioeconomic status, parity, gravidity, body mass index, history of genetic disorder factors showed non-significant results.
Conclusions: The practicing pica and other factors causing anemia cause low birth weight in new born while location or place of living did not affect the weight of the new born.
Keywords: Practices, Pica, Pregnant females, Outcome

INTRODUCTION

Pica is defined as the consumption of nonfood items which provoked interest of medical personnel since 16th century. It is an eating disorder and habitual intake of non-food items these are non-nutritional stuff taken over a constant period of time[1] while geophagia is the compulsive eating of dirt and clay other substances like clay laundry starch, chalk, paint, soap freezer frost, ice baking soda and burnt matches, it is because of increased food craving during pregnancy or increased demand of food during pregnancy so women fulfil their needs in eating such non-food items.[2]

Pica during pregnancy remains under observation because prevalence of pica in United States was 68%. Women taking clay, dirt and starch also depend upon the race as it was four time higher in black women than in white women. A study by Edwards et all found no racial difference and not in rural population while he found it in childhood, family and non-pregnant ladies. In many studies nutritional, physiologic, environmental, socioeconomic, cultural and psychiatric causes were the etiology of pica. Effects on mother could be intestinal obstruction, dysfunctional labor due to fecal impaction, parasitic infection, toxemia, dental injuries, reduce minerals absorption, hyperkalemia and lead poisoning with constipation are the medical problem cause by the ingestion of non-food items or practicing the pica.[1] Some other items like citrus fruits, pickles, ice cream, chocolate and chips among these the commonest food items are tea, fatty food, coffee, spices and fried items food intake may be high energy intake and also can be low energy intake.[3] The prevalence of pica is 68% in united states.[4]

Pregnant women are not at risk for pica instead, lactation and blood donors are also at risk 5. So much more research is needed in this regard because anemia is the main nutritional deficiency associated with the pica. The habit of pica leads to 2.4 increased risk of anemia and associated with low level of hematocrit level.[6] Other effects on mother health could be constipation, labor dysfunction etc[7] while on fetus can cause low birth weight, irritability, decreased fetal head circumference, prematurity chemical such as lead, pesticides and herbicides can effect new born health.[8]

The exact prevalence of pica is under reported because patients are reluctant to show this habit due to feeling shame and less importance is given by health professionals to inquire about the unusual activities or habits.[9] Proper nutrition is important for mother and fetus these nutrients provide growth and nutrition for the newborn. Therefore to understand food craving, pica during pregnancy is important.[3] The present study was done to find out the females practicing pica and there outcome on fetus.

MATERIALS AND METHODS

It was a cross sectional analytical study carried out from 1st May 2021 to 31st December 2021 and 385 pregnant women were enrolled. All the pregnant women with term pregnancy visiting tertiary care hospitals (HMC & KTH), age 15 to 49 years, all the primigravida and multigravida with term pregnancy were included in the study. Patient with the history of diabetes mellitus, any liver disease, any other pathology, patient with any other disease were excluded from the study. Pilot study was done on 10% of the sample and the questionnaire was filled from the Naseer Teaching Hospital Peshawar. Variables were age, ethnicity, urban, rural, housing into kuccha and pakka, occupational status, antenatal visits, Hb value, history of any infectious disease like malaria, typhoid ,blood transfusion, genetic disorders, eating habits, taking non-food items, effects on new born were the variables included. The data was entered and analyzed through SPSS-24. P-value <0.05 was considered as significant.

RESULTS

Forty seven (27.7%) were anemic while 72.3% anemia was present in adult mothers the result was significant p-value was 0.00 which showed strong association with maternal anemia. The mean age was 31.37, the low birth weight was found in patient living in rural areas with low socioeconomic status practicing pica and blood transfusion the results were significant p-value was less than 0.05 which showed strong association (Tables 1-6).

Table 1: Maternal anemia in a female of reproductive age group

Status of mother	Maternal anemia		P value
	Non-anemic	Anemic	
Adolescent mothers	13 (27.7%)	34 (72.3%)	0.000
Adults mothers	221 (65.2%)	117 (34.8%)	

Table 2: Association of place, family antenatal visits with new born weight

Variable	Newborn weight		P value
	Normal	Low birth weight	
Residence			
Urban	82	60	0.312
Rural	152	91	
Family system			
Nuclear	40	33	
Joint	135	67	0.033
Single	58	52	
Antenatal visits			
No visit	29	12	
First visit	26	53	
Second visit	41	48	0.000
More than 2 visit	138	39	
Housing			
Good condition	203	115	0.005
Bad condition	31	37	

Table 3: Association between transfusion during pregnancy and new born weight

Transfusion During Pregnancy	Newborn weight		P value
	Normal	Low birth weight	
Yes	55	52	0.022
No	179	100	

Table 4: Association between non-food item (Pica) taken and new born weight

Non-food item	Newborn weight		P value
	Normal	Low birth weight	
Nil	206	103	
Clay/Dirt	18	31	0.000
Wall chalk	13	14	

Table 5: Association between grains taken and new born weight

Grains	Newborn weight		P value
	Normal	Low birth weight	
Yes	201	124	0.332
No	33	27	

Table 6: Association between medical illness and new born weight

Medical illness	Newborn weight		P value
	Normal	Low birth weight	
High blood pressure	110	65	
Bleeding disorder	16	27	
Peptic ulcer	33	28	0.001
Colorectal cancer	14	10	
None	61	21	

DISCUSSION

Non-nutritional items and pica have serious side effects on mother and neonate. A prospective cohort study was conducted in the Zahedan City of Iran in five health care centers in 2012 among 200 from18 to 40 years were selected for the study. Maternal profile during pregnancy like hemoglobin and ferritin levels, height weight and head circumference of the neonates. Clay taking were 23.3%, ice 53.7%, freezer frost 11.5% and other non-food items were 11.5%. Women practicing pica had lower hemoglobin level, head circumference was lower than those without pica 31.0±0.6 vs. 34.0±0.2 respectively. It suggests that pica practicing by females had lower hemoglobin level as compared to normal women not practicing pica.[3] This study showed that anemia in the pregnant women practicing pica. Anemia was found in joint family system with low birth weight of the new born. Females practicing pica had low birth weight babies and the results are significant p-value was 0.000.

Pica has negative effects on health it is less studied in African countries where it is highly prevalent. A study conducted in Ghana in 400 urban and rural area, sociodemographic profile was added in the questionnaire and results showed 27% pregnant women with pica were reported while age and education did not affect the pica p= 0.053 and p=0.142 respectively.[10] The present study is in accordance with the previous study women practicing

pica had low weight new born results were significant p-value 0.000 while location did not affect new born weight and the result was not significant P-value 0.312. Another study was carried out at the Department of Gynecology & Obstetrics of Liaquat College of Social Security Hospital (LCSSH) to find out the frequency of pica in pregnant women age 18 to 45 years found that pica is practicing by females got anemia and nutritional deficiencies.[9] Many studies found link between maternal anemia and pica but in contrast some studies showed no association between women practicing pica and anemia.[11,12] There was association between pica and maternal hemoglobin with low birth weight of a new born.[13]

Ahmad et al[14] showed decreased level of maternal hemoglobin associated with low birth weight which can explain the consumption of non-food item or junk foods in developing countries was associated with the low birth weight.[15] The place of mother was also associated with low birth weight ,mothers living in the rural got 4 times more likely to have new born with low birth weight as compared to women living in urban areas.[16] This is not in consistency with the present study the females living in the urban areas have more percentage for low birth weight of new born as compared to the women living in the rural areas the result was not significant p-value was 0.312. In urban area all the facilities were there for the females but because of taking junk food from fast food stores can lead to low birth babies as compared to females living in the rural areas there all the poultry products, vegetables and meat is available in market and no concept of junk food in the rural area. People are taking fresh and healthy food due to which the rate of low birth weight is low as compared to urban areas.

CONCLUSION

The pica and other factors causing anemia leads to low birth weight in new born while location or place of living did not affect the weight of the new born.

REFERENCES

1. Simpson E, Mull JD, Longley E, East J. Pica during pregnancy in low-income women born in Mexico. Western J Med 2000;173(1);20-25.
2. Corbett RW, Ryan C, Weinrich SP. Pica in Pregnancy: Does It Affect Pregnancy Outcomes? Am J Maternal-Child Nurs 2003; 28: 183-9.
3. Khoushabi F. Pica Practices among pregnant women are associated with lower hemoglobin levels and pregnancy outcome. J Obstet Gynecol 2014, 4, 646-52.
4. Mortazavi Z, Mohammadi M. Prevalence of Pica in pregnant women referred to health care centers in Zahedan, Iran (2002-2003). African Journal of Food Science, 2010; 4: 642-5.
5. Golden CD, Rasolofoniaina BR, Benjamin R, Young SL. Pica and amylophagy are common among Malagasy men, women and children. PLoS ONE 2012; 7: e47129
6. Lumish RA, Young SL, Lee S, Cooper E, Pressman E, Guillet R, O'Brien KO. Gestational iron deficiency is associated with pica behaviors in adolescents. J Nutr 2014;144:1533-9.
7. Lin JW, Temple L, Trujillo C, Mejia Rodriquez F, Rosas LG, Fernald L, et al. Pica during pregnancy among Mexican born women: a formative study. Maternal Child Nutrition 2015;11:550-8.
8. Placek CD. Ethnomedical and sociocultural factors of pica substances in rural South India. Ecology Food Nutr 2017;56:238-55.
9. Akhtar AN, Fatima F, Suleman MA, Naseem S. Prevalence of Pica Among Pregnant Females of Low-Income Population. A Hospital Based Study. Ann ASH KMDC 2021;26.
10. Mensah FO, Twumasi P, Amenawonyo XK, Larbie C, Baffo AK. Pica practice among pregnant women in the Kumasi metropolis of Ghana. Int Health 2010; 2(4): 282-6.
11. WHO. International Statistical Classification of Diseases and Related Health Problems. Geneva: WHO; 2010
12. Rainville AJ. Pica practices of pregnant women are associated with lower maternal hemoglobin level at delivery. J Am Diet Assoc 1998;98(3):293-6.
13. Khoushabi F, Ahmadi P, Shadan MR, Heydari A, Miri A, Jamnejad M, et al. Pica Practices among Pregnant Women Are Associated with Lower Hemoglobin Levels and Pregnancy Outcome. Open J Obstet Gynecol 2014;04(11):646-52.
14. Ahmad MO, Kalsoom U, Sughra U, Hadi U, Imran M. Effect of maternal anaemia on birth weight. J Ayub Med Coll Abbottabad 2011; 23(1):77-9.
15. World Bank and International Monetry Fund. Food Prices, Nutrition, and the Millennium Development Goals. Washington DC, USA: 2012.
16. Tema T. Prevalence and determinants of LBW in Jimma zone, Southwest Ethiopia. East Afr Med J 2006;83:366-71.