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Analysis of correlation of socio-economic status, demographic parameters and clinical parameters in pregnant women, who were attending a tertiary care rural hospital

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ABSTRACT

Background: Pregnancy is associated with normal physiological changes that assist the nurturing and survival of the fetus. Various factors involve in this context, like biochemical, hematological, socioeconomic etc.
Objective: present study, designed to assess sociodemographic data and clinical data in normal pregnant women in rural area of Nellore District.
Methodology: A case-control study comprised 100 women, comprised 50 pregnant women and 50 healthy non pregnant age-matched controls carried out at Dept. of Gynecology & Obstetrics, Narayana Medical College Hospital, Nellore Rural, Andhra Pradesh. Data related to sociodemographic data (age, education, employment and family income/month), medical history (previous pregnancy complications), clinical data (complication during this pregnancy, treatment and blood pressure), and food and drink intake were collected by the questionnaire and analyzed.
Results & conclusion: Unemployment women and lower family income were more prevalent among pregnant women. Medical history of the study population showed that the frequency of the previous pregnancy in controls was significantly lower than that in cases. In general, blood pressure of the study population was within the normal range. The food and drink intake observation showed that pregnant women ate less fish and egg and more fruits and vegetables) than non pregnant women. Coffee was drunk more frequently by non pregnant women. Hence, Poor food and drink regime observed among pregnant women necessitate the presence of healthy food program in the antenatal care clinics. In this context, consumption of fruits along with the main meals of all women in reproductive age should be reinforced. Frequent monitoring of blood pressure throughout pregnancy should be advised.

Keywords: Pregnancy, socio-demographic, rural area.

INTRODUCTION

According to the WHO, every year ill health as a result of pregnancy is experienced by more than 20 million women around the world.[1] Furthermore, the lives of more than 8 million womens were threatened and more than 500,000 womens were estimated to have died as a result of causes related to pregnancy. Some of the complaints that may occur during and/or after pregnancy due to the many changes which pregnancy causes in a woman's body.

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Women with gestational diabetes are at increased risk of developing type 2 diabetes mellitus after pregnancy, hypertension as well as having a higher incidence of preeclampsia and caesarean section. [2] Some risk factors at rural area may highly responsible for biochemical, haematological and developmental complaints in pregnant womens. Hence current study undertaken to understand various socio-demographics, and other factors and their role in pregnant women.

METHODOLOGY

Study setting: Dept. of Gynecology and Obstetrics, Narayana Medical College Hospital, Nellore Rural, Andhra Pradesh, India
Study design: The study is a case-control design. The study population comprised 100 women aged 18-40

years; 50 apparently healthy pregnant women and 50 healthy non pregnant age-matched controls.

Selection criteria

Inclusion criteria: Healthy non pregnant and pregnant women from Nellore district Rural area aged 18-40 years and are consumers of normal mixed food.

Exclusion criteria: Pregnant women with gestational diabetes mellitus, hypertension, obesity, and women with other chronic diseases. Women over age 40 because pregnancy in this age is considered to be high risk.

Data collection

A meeting interview was used for filling in a questionnaire were conducted face to face by gynecologist. Most questions were one of two types: yes/no question. The questionnaire included questions on sociodemographic data (age, education, employment and family income/month), medical history (previous pregnancy complications), clinical data (complication during this pregnancy, treatment and blood pressure), and food and drink intake. Simple distribution of the study variables and the cross tabulation were applied. Chi-square Test was used to identify the significance of the relations, associations, and interactions among various variables. Data were analyzed using SPSS (Statistical Package for the Social Science Inc. Chicago, Illinois USA, version 18.0) statistical package. The results in procedures were accepted as statistical significant when the p-value was less than 5% ($p<0.05$).

RESULTS

Socio-demographic data

Table 1 summarizes the sociodemographic data of the study population. The difference between pregnant and non pregnant women in term of age distribution was not significant (P=0.852). The mean ages of controls and pregnant women were 27.4±6.3 and 27.3±6.8 years old, respectively.

Analysis of the educational status of the study population showed no significant differences at various educational levels between pregnant and non pregnant women (P=0.342). Regarding employment, 10 (20%) controls, and 2 (4%) pregnant women were employed whereas 40 (80%) controls, and 48 (96%) pregnants were unemployed. The difference between various groups was significant with higher number of unemployed pregnant women (P=0.015). Similarly, there was significant difference between pregnant women in term of family income per month with lower income among pregnant women (P=0.000).

Table 1: Sociodemographic data of the study population

Sociodemographic data	Non-Pregnant Controls (n=50) No. (%)	Pregnant women (n=50) No. (%)	p value
Age (year)			0.852
≤20	10 (20)	9 (18)	
21-30	13 (26)	29 (58)	
>30	27 (54)	12 (24)	
mean±S.D	27.4±6.3	27.3±6.8	
Education			0.342*
University	26 (50)	12 (24)	
Secondary	18 (36)	28 (56)	
Preparatory	6 (12)	10 (20)	
Employment			0.015*
Yes	10 (20)	2 (4)	
No	40 (80)	48 (96)	
Family income/month [Rupees]			0.000
< 1000	13 (26)	14 (28)	
1000-2000	14 (28)	26 (50)	
> 2000	23 (46)	10 (20)	

* $p<0.05$: significant

Medical history of the study population

Table 2 illustrates medical history of study population. 34 (68%) number of controls said yes been pregnant before compared to their counterparts of pregnant women of 43 (86%) in the pregnants respectively (P= 0.030). Out of them, the number of controls who had abortion and dead babies was lower than their counterparts of pregnant women in each trimester whereas controls had higher number of live babies (p>0.05). In addition, the occurrence of complications in previous pregnancy was relatively low registering 3 (8.8%) in controls and 2 (4.7%) in pregnant womens respectively (P=0.956). Regarding pregnancy avoidance, 10 (20%) controls said yes compared to 13 (26%) pregnant womens respectively (P= 0.535). The means of pregnancy avoidance in order were pills followed by intrauterine device and finally by condom (P=0.956).

Table 2: Medical history of the study population

Medical history	Non pregnant Controls (n=50) No. (%)	Pregnant women (n=50) No. (%)	p value
Have you been pregnant before			0.030
Yes	34 (68)	43 (86)	
No	16 (32)	7 (14)	
What's about for outcome of each pregnancy			
Abortion	18 (52.9)	24 (55.9)	0.881
Live baby	34 (100)	42 (97.7)	0.518*
Dead baby	4 (11.8)	5 (11.6	0.999*
Pervious pregnancy complications**			0.956
Yes	3 (8.8)	2 (4.7)	
No	31 (91.2)	41 (95.3)	
Pregnancy avoidance			0.535
Yes	10 (20)	13 (26)	
No	40 (80)	37 (74)	
If yes			0.956*
Condom	4 (40)	2 (14.3)	
Intra uterine device	3 (30)	5 (38.5)	
Pills	3 (30)	6 (46.2)	

** Pervious complications included: gestational diabetes mellitus, infection, hypertension and vaginal Bleeding

Clinical data of the study population

Clinical data of the study population are provided in table 3. Only 4 (8%) of pregnant women reported pregnancy complications. Similarly 2 (4%) pregnant women admitted receiving treatment. Regarding blood pressure, there was no significant difference in systolic blood pressure among pregnant and non pregnant women (108.7±10.1 mmHg), P=0.076. On the hand, diastolic blood pressure recording significant decrease in pregnant women showing values of 71.0±8.5 mmHg compared to 71.3±8.2 mmHg in non pregnant women (P=0.017).

Table 3: Clinical data of the study population

Clinical data of the study population	Non pregnant Controls(n=50) No. (%)	Pregnant women (n=50) No. (%)	*p* value
Complication during this pregnancy* Yes No	 0 (0) 50 (100)	 4 (8) 46 (92)	NA
Received treatment during this pregnancy Yes No	 1 (2) 49 (98)	 2 (4) 48 (96)	NA
Blood pressure Systolic BP (mmHg) Diastolic BP (mmHg)	 108.7±10.1 71.3±8.2	 106.7±10.9 71.0±8.5	 0.076 0.017

NA: non applicable

Food intake of the study population

Table 4 shows food and drink intake of the study population. Pregnant women eat less meat, fish and egg than non pregnant women. The difference between the various groups was significant for fish and egg (P=0.003 and P=0.005). Fruits and vegetables were eaten more frequently by pregnant women (P=0.046). In general, pregnant women drink less tea, coffee, milk and more juice than non pregnant women. The difference between the various groups was not significant except for coffee (P=0.002).

Table 4: Food & Drink intake of the study population

Food intake	Non pregnant Controls (n=50) No. (%)	Pregnant women (n=50) No. (%)	*p* value
Meat Daily Twice/week Once/week None	 20 18 10 2	 8 26 8 8	0.088
Fish Daily Twice/week Once/week None	 2 18 30 0	 0 14 20 16	0.003
Egg Daily Twice/week Once/week None	 34 6 8 2	 18 14 4 14	0.005
Fruits and vegetables Daily Twice/week Once/week None	 34 8 8 0	 38 6 4 2	0.046

Tea			0.542
Daily	22	16	
Twice/week	10	8	
Once/week	2	4	
None	16	22	
Coffee			0.002
Daily	28	14	
Twice/week	4	10	
Once/week	4	0	
None	14	26	
Milk			0.578
Daily	18	14	
Twice/week	14	10	
Once/week	8	6	
None	10	20	
Juice			0.969
Daily	36	38	
Twice/week	6	4	
Once/week	6	6	
None	2	2	

DISCUSSION

Sociodemographic data presented in this study showed that higher number of pregnant women were unemployed compared to non pregnant women. In addition, the pregnant women have lower income than non pregnant women. These findings are in agreement with that obtained by previously.[3-5] It was reported that employed women faced a selfconflict between employment and motherhood. (6) Despite the concluded idea that the increased labor force participation rate of women has not had detrimental effects on health at birth, many employers consider pregnancy as a disadvantage in terms of low labor force participation. Previously it was reported that poor families often have large numbers of children, partly because they have limited or no access to contraception and they may lack knowledge on family planning.[5]

Medical history of the study population showed that the frequency of the previous pregnancy in controls was significantly lower than that in cases. This finding coincides with the previous result that larger number of controls are engaged in jobs than cases. In this context, controls have relatively more live babies than cases. World health organization (2012) reported that women who have more than four children are at increased risk of infant and maternal mortality.[1] The common contraceptive means among Palestinian women were found to be intrauterine device and pills. Promotion of family planning in terms of ensuring access to preferred contraceptive methods for women and couples allows spacing of pregnancies and can delay pregnancies in younger women at increased risk of health problems and death from early childbearing, and can prevent pregnancies among older women who also face increased risk. Clinical data of the study population showed that almost all pregnant women were healthy and received almost no treatment. In general, blood pressure of the study population was within the normal range. However, both systolic and diastolic blood pressures decreased in the first and second trimesters and then returned nearly to that of controls. The difference in diastolic blood pressure between the various groups was significant, whereas that in systolic pressure was not significant. Similar results were obtained in a previous study.[7] In normal pregnancy, it is accepted that blood pressure falls in the 1st trimester caused by active vasodilatation achieved through prostacyclin and nitric oxide as well as the elevated of progesterone.

This reduction in blood pressure primarily affects the diastolic pressure and a drop of 10 mmHg is usual by 13-20 weeks gestation. Blood pressure contentious to fall until 22-24 weeks and then gradually increases to pre-pregnancy level [8].

The present data revealed that pregnant women eat less meat, fish and egg than non pregnant women. Poor consumption of such food stuff may be attributed to cravings or distaste for certain foods particularly in the first trimester and/or to lack of knowledge among pregnant women regarding food consumption during pregnancy.

In contrast, fruits and vegetables were eaten more frequently by pregnant women. Previously, it was found that pregnant women reported higher consumption of fruits, which results in a better score for fiber intake.[9] Sato *et al.*, (2010) reported less frequent consumption of meat and egg and higher consumption of fruits among pregnant women than non pregnant.[10]Thus, recommending the consumption of fruits along with the main meals of all women in reproductive age should be reinforced. Concerning drink intake, pregnant women drink less tea, coffee, milk and more juice than non pregnant women. Similar result was pointed out by previous study, who found that pregnant women drink coffee less frequently than non pregnant women. [10]

CONCLUSION

Lower family income is more prevalent among pregnant Women. Medical history of the study population showed that the frequency of the previous pregnancy in controls was significantly lower than that in cases. Food and drink intake showed that pregnant women ate less fish and egg, and more fruits and vegetables than non pregnant women. Coffee was drunk more frequently by non pregnant women. Hence, Poor food and drink regime observed among pregnant women necessitate the presence of healthy food program in the antenatal care clinics. In this context, consumption of fruits along with the main meals of all women in reproductive age should be reinforced. Frequent monitoring of blood pressure throughout pregnancy should be advised.

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