Original Article

Prevalence of Medical Disorders in Pregnancy in Ebonyi State University Teaching Hospital

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ABSTRACT

Background: Pregnancy is a physiological state, but when associated with an underlying medical disorder, it has a large impact on the well-being of a mother. The pattern of medical disorders has been documented to have changed over the years. **Aim:** This study seeks to retrospectively determine the incidence of medical disorders in pregnancy, and to determine the trend over a 5-year period in Ebonyi State University Teaching Hospital (EBSUTH). **Materials and Methods:** This was a retrospective study of all medical cases in pregnancy managed in EBSUTH from 1st of January 2006 to 31st December 2010. Data were analyzed using Epi-Info statistical package. The results were presented in simple tables. Test statistics was set at 95% confidence interval. **Results:** A total of 339 medical cases in pregnancy of 2117 admissions were managed during the study period (16.0%). Mean (SD) age of the women was 28.05 (5.36) years and age ranged 15-45 years for about 314 cases that had the age documented. Of the 339 cases, a total of 149 cases of malaria occurred during the study period (149/339; 44%), out of which only 104 were malaria alone. The rest (45 in number) occurred with urinary tract infection, pregnancy-induced hypertension, Diabetes mellitus, lobar pneumonia, and anemia in pregnancy. This was followed by hypertensive disorders which account for 29.2% of all cases of medical disorders. Urinary tract infection ranked third (20.7% of all medical disorder). The incidence of malaria was 7% (149/2117), that of hypertensive disorder was 4.7% (99/2117), and of Urinary Tract Infection was 3.1% (65/2117). Others include anemia in pregnancy 0.6% (13/2117), Diabetes mellitus 0.4% (9/2117), and Gastroenteritis 0.4% (9/2117). There is no statistical difference between the incidences of medical complications over the study period. **Conclusion:** There is relatively little change in the incidences of medical complication over the studied period. Malaria played a very important role in the prevalence of medical complications in pregnancy. Preventive strategies may have reduced the prevalence over the years. However, more effort is needed to markedly reduce the medical complications in pregnancy.

KEY WORDS: Disorders, medical complication, pregnancy, prevalence, trend

INTRODUCTION

Relatively, few medical disorders can prevent pregnancy, almost the whole of the medical conditions can complicate it. Not surprisingly, pregnancy has a large impact on the wellbeing of a mother with an underlying medical disorder. Approximately 20% of maternal deaths are the result of preexisting conditions that are exacerbated by pregnancy or its management.[1] The pattern of disease has changed over the years with improvements in socio-economic conditions, delaying of child birth due to pursuit of career excellence, setting up of screening services for key medical conditions, improved care in the management of major complications in obstetrics, and success in assisted reproductive treatment in elderly women.

A study has shown that most medical disorders are decreasing in recent times except for Diabetes mellitus.[2] Because of the improvements in the medical, obstetric, and anesthetic management of pregnancy, many women with medical disorders can go through a pregnancy without major problems and the contribution of medical disorders to maternal mortality is reducing remarkably.[3]

There has also been a progressive decrease in the perinatal mortality associated with some medical disorders such

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hypertension and diabetes.[4] Medical conditions affect pregnancy in a number of ways. The management of medical complications requires carefulness as the physiological changes in pregnancy mimic the signs and symptoms of certain medical conditions, especially cardiovascular and the respiratory systems as well as certain endocrine disorders, for example, the first signs and symptoms of disordered thyroid function maybe mimicked by pregnancy itself.[5]

The knowledge of the impact, or the burden of, or contribution of the medical condition to pregnancy outcome cannot be overemphasized as this also affects the unborn child and has been shown to contribute to infant mortality.[1] No work has been done to assess this impact of medical condition in Abakaliki, Southeast Nigeria. This study seeks to determine retrospectively the incidence of medical disorders in pregnancy over a 5-year period in Ebonyi State University Teaching Hospital (EBSUTH) as well as assess the trend over a 5-year period. This, we hope, will form a basis for advocating the establishment of a preconception clinic for women with medical condition planning to become pregnant.

MATERIALS AND METHODS

This was a retrospective study of all medical complications in pregnancy (managed in EBSUTH from the 1st of January 2006 to 31st December 2010. EBSUTH is a referral hospital located in the capital of Ebonyi State, Abakaliki. It has a standard maternity ward which conducts about 1500 deliveries per year. The antenatal clinic runs every day and Wednesday is dedicated to booking. On presentation, the women are clerked and relevant information obtained which includes; indication for booking, medical history, and past obstetric history. They are examined and afterward, investigated and screened for any medical condition by the use of urinalysis, fasting blood sugar if indicated, and genotype. Patients found to have medical conditions are co-managed with the relevant physician. A preconception clinic is presently non-existent. In 2008, intermittent preventive therapy was introduced in the hospital and is given to all pregnant women for the prevention of malaria. This is given in two doses starting from quickening and repeated after 4 weeks. Before then, malaria prophylaxis was provided by the use of pyrimethamine, taken once a week. The appearance of malarial parasite in a thick blood film is a positive result for presence of malarial parasite.

The information was obtained from the antenatal clinic, antenatal ward, and labor ward in additions to the gynecological ward. The case notes were retrieved and information obtained. This included the socio-demographic data of the patients, the parity, the gestational age at presentation, and any complications attributed to the medical condition. Also, the outcomes which will include mode of delivery, sex, and weight of the neonate were documented.

The cases with no clear diagnosis were excluded. Cases that were not proven by laboratory investigations were excluded. Cases, where fever, jaundice, and headache, which are symptoms of many disorders, were documented alone without the cause were excluded. For cases with multiple diagnosis, the primary diagnosis was taken but other associated disorders were however, noted. Human immunodeficiency virus cases where excluded as the case notes were not readily available for scrutiny. Ethical and research committee of Ebonyi State University was informed and permission obtained.

Data were analyzed using Epi-Info statistical package version 3.5.2 (Centers for Disease Control and Prevention, Atlanta, GA, USA). Descriptive statistics such as means and standard deviations were used to summarize quantitative variables while categorical variables were summarized with proportions. Representation was made using Frequency tables. The Chi-square test was used to compare proportions and to test for trends. Test statistics was set at 95% confidence interval. A $P<0.05$ was considered statistically significant.

RESULTS

There was a total of 339 medical conditions in pregnancy of 2117 (16.0%) admissions that were managed during the study period. Mean age of the women was 28.05 (5.36) years and their ages ranged 15-45 years for about 314 cases that had the age documented. Majority of the women were in the age group 26-35 (56.7%) This was followed by age group between 16 years and 25 years 106 (33.8%). This was followed by the age group 36-45 (30%). There was no significant difference in the age distribution and the trend remained constant over the years. Majority of the women were married, i.e., 332, (97.9%). They were mostly Igbo by ethnicity with average parity of 3 (2.7). The women were mostly Christians 337 (99.4%). Two hundred and thirty-three were booked (68.7%) and only 35 were unbooked. The booking Status of the rest, 71 (20.9%) in number were not documented [Table 1]. One-third had education below the primary educational level.

Of the 339 medical conditions in pregnancy, 149 (149/339; 44.0%) cases of malaria occurred during the study period. Out of which only 104 (were of malaria alone. The rest (45 in number) occurred with Urinary Tract Infection, pregnancy-induced Hypertension, Diabetes Mellitus,

lobar pneumonia, and anemia in pregnancy. Hypertensive disorders accounted for 29.2% of all cases of medical disorders. Urinary tract infection ranked third, accounted for 19.2% with incidence of 2.7% of all medical disorder [Table 2]. There is no statistical difference between the incidences of medical disorders over the study period P=0.074 (P>0.05).

There was generally poor documentation that necessitated the exclusion of a lot of information from the results. The follow-up of cases was faulty and so, the outcome of the medical complications were not complete for all cases so was dropped even though that was not the main focus of the study and will be an interesting area to research on. Many cases were excluded for lack of evidence to substantiate the diagnosis for which the patients were admitted for treatment. It is very important to note here that there was quite a number of documented defaults in the use of antenatal medications among patients who had malaria.

DISCUSSION

The incidence of medical disorder in this study is 16.0%. In 2006, it was 13.2%. This rose to 20.7% in 2007, came down to 17.6% in 2008, further down in 2009 and 2010. The sudden rise and subsequent fall and plateauing could not be explained. However, these changes seem to tally with changes in the prevalence of malaria. The prevalence of malaria in 2006 was 7.2%, which rose to 8.3% in 2007, but dropped to 7.3% in 2008 [Table 2]. The incidence of malaria dropped further to 5.6% in 2009 and 5.2% in 2010 [Table 2]. It would be interesting to know what it will be in 2011 and 2012. The drop in 2007 coincided with the implementation of Intermittent preventive treatment for malaria prophylaxis with sulphadoxine-pyrimethamine and emphasis on the use of insecticide-treated net (ITN). Most pregnant women now sleep under ITN.

Table 1: Incidence of the medial complication by year and booking status and their frequencies (percent) per year of the cases with medical complications

Year	Total admission (N)	Booked cases (%)	Unbooked cases (%)	Not indicated (%)	Total medical disorders (n)	Incidence or medical disorders (n/N) (%)
2006	569	49 (8.6)	10 (1.8)	16 (2.8)	75	13.2
2007	506	86 (17.0)	11 (2.2)	7 (1.4)	104	20.6
2008	535	80 (15.0)	9 (1.7)	4 (0.8)	93	17.4
2009	216	17 (7.9)	5 (2.3)	6 (2.7)	28	13.0
2010	291	1 (0.3)	0 (0.0)	38 (13.1)	39	13.4
Total	2117	233 (11.0)	35 (1.7)	71 (3.4)	339	16.0

Table 2: Incidence medical disorder by year

Medical disorder	2006 (%)	2007 (%)	2008 (%)	2009 (%)	2010 (%)	Total (%)
Malaria in pregnancy	41 (7.2)	42 (8.3)	39 (7.3)	12 (5.6)	15 (5.2)	149 (7.0)
UTI/pyelonephritis	16 (0.2)	26 (5.1)	14 (2.6)	6 (2.8)	3 (1.0)	65 (3.1)
PIH/Eclampsia	17 (3.0)	34 (6.7)	27 (5.1)	9 (4.2)	12 (4.1)	99 (4.7)
Diabetes mellitus	0 (0.0)	1 (0.2)	5 (0.9)	2 (0.9)	1 (0.3)	9 (0.4)
Anemia in pregnancy	2 (0.4)	2 (0.4)	4 (0.8)	1 (0.5)	4 (1.4)	13 (0.6)
Anemic heart failure	1 (0.2)	2 (0.4)	1 (0.2)	–	1 (0.4)	5 (0.2)
Peptic ulcer disease	–	–	1 (0.2)	–	0 (0.0)	1 (0.1)
Gastroenteritis	2 (0.4)	1 (0.2)	3 (0.6)	2 (0.9)	1 (0.4)	9 (0.4)
Lobar pneumonia	2 (0.4)	1 (0.2)	3 (0.6)	–	–	6 (0.3)
Broncho pneumonia	2 (0.4)	2 (0.4)	3 (0.6)	–	–	7 (0.3)
Congestive cardiac failure	1 (0.2)	–	–	–	–	1 (0.1)
Asthma	–	2 (0.4	1 (0.2)	–	–	3 (0.1)
Sickle cell anemia	–	1 (0.2)	–	–	–	1 (0.1)
Bacteria conjunctivitis	–	–	1 (0.2)	–	–	1 (0.1)
Hepatitis	2 (0.4)	1 (0.2)	1 (0.2)	–	1 (0.40)	5 (0.2)
Psychosis	1 (0.2)	–	–	–	–	1 (0.1)
Diarrhea	–	2 (0.4)	1 (0.2)	–	2 (0.7)	3 (0.1)
Tuberculoid leprosy	–	–	1 (0.2)	–	–	1 (0.1)

UTI – Urinary tract infection; PIH – Pregnancy induced hypertension

Many researchers have reported high prevalence rates of malaria in pregnancy in different parts of Nigeria, ranging from 19.7% to 72.0%.[6-9] These higher prevalences may have been, because the studies were carried out before the emphasis and approval of the use intermittent preventive therapy for malaria prophylaxis. And the fact that antenatal cases were included. Almost all the antenatal cases were excluded for lack of laboratory evidence of parasitemia in our study. Our lower prevalence, will give us an idea of the success of the Antimalarial campaign, especially the use of the intermittent preventive treatment. Many studies has documented the effectiveness of the sulphadoxine-pyrimethamine combination therapy.[10-12] The commonest medical complication in pregnancy in our study is malaria accounting for 43.9% of medical disorders; it is therefore reasonable to postulate that the prevalence of medical complications can be remarkably reduced if malaria is attacked more aggressively.

Hypertension is among the most commonly seen medical disorders of pregnancy.[13,14] It is the second commonest medical disorder in our study contributing 29.2%. The prevalence of 4.7% in this study fell within the generally quoted incidence of 2-8%.[15] The pattern was similar to malaria being lowest in 2006 (3.0%), rising to 6.7 in 2007 and dropping steadily to 5.2 in 2010. No reason could be adduced for this trend or pattern. It is however, necessary to pay attention to this disorder coming second in this study this is because it is associated with increased risk of maternal-perinatal adverse outcome.[14] Hypertensive disorders, particularly eclampsia, have been stated to cause approximately 12% of all maternal deaths.[1] Some report it to be as high as 40-60%.[16]

Urinary tract infection ranked third in this study and contributes 19.2% to the medical complications seen among the study population. The overall prevalence is 3.1% and showed no specific pattern. Ranking third indicates need for attention. If women are screened for asymptomatic bacteriuria, the number of women admitted for urinary tract infection may reduce remarkably and thereby reduce the economic burden to the institution. Rouse and colleagues

performed a cost-benefit analysis of screening for bacteriuria in pregnant women versus inpatient treatment of pyelonephritis and found a substantial decrease in overall cost with screening.[17] A study comparing the economic implication of routine screen for asymptomatic bacteria and admission burden may provide useful information for health policy-makers in the institution.

The prevalence of anemia in this study is 0.6%. This is certainly low. This is because this study only picked cases in pregnancy admitted solely for severe anemia necessitating admission for blood transfusion. If records of patients with Hemoglobin less 10 g/dL were used, the prevalence of anemia would have been much higher. The incidences during antenatal periods are quite high.[18] Idowu *et al*. recorded as high as 76.5% among 365 women attending antenatal clinic in a tertiary health institution at Abeokuta,[18] but fewer cases of anemia in pregnancy are severe enough to necessitate admission. The study carried out in Hong Kong recorded anemia as the commonest medical disorder followed by Diabetes mellitus.[2] Although it is important to note that the setting for the Hong Kong study is different, anemia predisposes women to intrauterine growth restrictions and also to infection during pregnancy and childbirth, and increased risk of death due to obstetric hemorrhage

Though studies report increasing incidence of gestational Diabetes mellitus because of changes in life styles and increased screening rate,[19] our study showed that Diabetes mellitus as the fifth commonest medical disorder contributing to 2.7% of all the medical complications in pregnancy with incidence of 0.4%. This incidence agrees with the general incidence of 0.25% and 3.0%.[19-21] In countries where diabetes is increasing, it has been attributed to increasing maternal age. Could our relatively constant prevalence be attributed to little change in the mean age of our study population?

Researchers have attributed changes in the incidence of medical disorders to changing maternal age due to women delaying childbearing as a consequence of marrying at a later age and the pursuit of professional goals.[22] While this has been noticed in advanced countries,[23] our study revealed no change in the average ages of mothers that present to our center that may explain the related constant prevalence rates of medical complications in this study if the assumption in previous studies is anything to go by. Medical disorder was found to be higher among the age range 26-35. This may be explained by the high number of pregnant women in this study who belong to this age group. They are mostly multigravidas. Studies have shown a relation between parity and malaria in pregnancy which contributed to more than a quarter of the medical disorders in this study. We were not able to conclusively determine the relationship between parity and medical disorder in this study and was left for further research.

Booking status has been associated with prevalence of medical disorder, while it is commoner in booked. More booked women were diagnosed with medical disorders than the unbooked in our study. This maybe because unbooked women presented in labor leaving no opportunity for antenatal care and possible diagnosis of medical disorders. The authors regret a relatively high number of unknown booking status recorded in this study and could have been a source of bias.

The discussion wouldn't be complete without mentioning the disappointingly poor documentation on patient's case note as well as poor record-keeping which has led to reduction in very important information this study would have provided. We recognized this as a serious source of bias. The contribution of medical complication to maternal mortality is an area where further research is advocated. Furthermore, a mention of the outcome of these medically complicated pregnancies would have enriched the information this study set out to provide to the medical community. It is however, not the focus of this of this study and it will be a good study to be looked at in future. The institution was alerted to the poor documentation and emphasis on the need for improvement was campaigned for and it is the sincere hope of these authors that the advice and advocacies were well taken.

CONCLUSION

There is relatively little change in the incidence of medical disorders over the years under studied that is not statistically significant. The little change seen seems to tally with the changes in the prevalence of malaria. Preventive strategies, especially the introduction of the use of Sulphadoxine-pyrimethamine combination therapy, may have contributed to the reduction noted in the prevalence of malaria. More efforts should be geared toward ensuring wide coverage and strict adherence to anti-malaria prophylaxis prescriptions, education on the need for good environmental hygiene, and use of ITN.

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