Original Research Article

GAD-7 and PHQ-9 measurement of perinatal anxiety and depression in women with hypertensive disorders of pregnancy in Yaounde, Cameroon

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ABSTRACT

Background: The aim of the study was to determine the prevalence of perinatal anxiety and depression in women with hypertensive diseases during pregnancy in Yaounde.

Methods: Authors carried out a cross-sectional descriptive study over nine months from October 2015 to May 2016, amongst pregnant women with hypertensive pregnancy disorders followed up in three tertiary care centers in Yaounde. Authors collected information from the medical files of selected patients by using a pre-tested and validated questionnaire in the perinatal period. We classified blood pressure values as per the JNC 7 recommendations. Anxiety and mental depression were evaluated for using the Generalized Anxiety Disorder 7-item and the Patient Health Questionnaires-9 respectively. Data analysis was done using CSPro version 6.2 and SPSS version 20.0 software.

Results: Authors included 202 patients during the study period. The mean age stood at 25.9± 6.4years (extremes 13-43years). Amongst these, 47.5% were single while 97.5% (197/202) had received at least primary education. Students represented 45.5% (92/202) of women while 102 (50.5%) of them had some form of employment in the public, private or informal sectors. Severe preeclampsia was the most prevalent hypertensive disorder in these women, with 69 (34.2%) developing eclampsia. We found that 79% (161/202) of these patients suffered from anxiety, 67.3% (136/202) were depressive while 61.3% (124/202) had both anxiety and depression.

Conclusions: The prevalence of perinatal anxiety and depression in women with hypertensive pregnancy disorders is high. Associated factors must be looked out in order to prevent these situations.

Keywords: Anxiety, Depression, Hypertension, Perinatal, Pregnancy, Preeclampsia

INTRODUCTION

Worldwide, millions of pregnant women are identified as being at high risk for obstetrical complications yearly.[1] Mental health is fundamental to health and pregnancy and the puerperium is at times sufficiently stressful to provoke exacerbation, recurrence or new onset of mental illness thereby leading to complications.[2,3] Hence maternal perinatal health has enormous consequences for the wellbeing of the mother, her baby and the family.[4] Because perinatal anxiety and depression could lead to serious consequences including poor obstetric and neonatal outcome, the American College of Obstetricians and Gynecologists (ACOG) recommends that women be screened during pregnancy.[5-7] The Royal College of Obstetricians and Gynecologists equally recommends

that healthcare providers should inquire about the mood of a woman at her first consult, to screen for potential signs of depression.[8]

Anxiety disorder refers to a spectrum of mental disorders characterized by a prominent fear of an anticipated adverse event.[9] Each of these disorders is well defined according to DSM-IV criteria, and range from obsessive-compulsive disorder, post-traumatic stress disorder, and generalized anxiety disorder including the various phobias.[2] Antenatal anxiety has a prevalence of about 12.5%, whereas post-partum anxiety which tends to occur with depression, and which is less diagnosed has a prevalence of 5-20%.[10] Unpleasant experiences due to unexpected medical interventions, severe pain, and sometimes fear of death could cause severe fear and anxiety in mothers.[11]

Depression on the other hand is a mood disorder.[2] Mood disorders are defined as mental disorders characterized by a disturbance of affective state. Depression is described in literature as both common and morbid.[12] These disorders are defined according to DSM-IV criteria. While it is estimated at 12% in the general population, increased prevalence has been described in the perinatal period, in low-income women, and during maternal-partner discord.[13,14] The consequences can be devastating for mother, baby and family. Thus, it has been linked to poor obstetrical outcome such as prematurity as well as decreased postpartum maternal sensitivity.[15,16] It is worth noting that the diagnosis is not always easy as symptoms of depression may overlap with pregnancy findings.[17]

Hypertension (HTN) is defined as a blood pressure ≥ 140/90 on at least two occasions, and at least 4-6hours apart.18 Hypertensive disorders in pregnancy however are in reality a spectrum of disorders. While many classifications exist, ACOG classifies the disease into: chronic hypertension (CH), preeclampsia/eclampsia (PE/ECL), superimposed preeclampsia on chronic HTN (PE/CH) and gestational hypertension.[3] It is vital here, to clearly differentiate pre-existing, pre-pregnancy hypertensive disorders (CH), from the pregnancy-specific potentially life-threatening PE/ECL. Unlike chronic disease, PE is diagnosed by the presence of hypertension as well as significant proteinuria. Eclampsia is defined as the occurrence of seizures that cannot be attributed to any other cause.3 The incidence for PE varies worldwide. In Yaounde, Motaze et al reported a prevalence of 4.97%, 25% being severe.[19]

Depression and anxiety tend to occur during pregnancies marked by persistent fear of disease.[20] Rubertsson et al reported depression and anxiety in early pregnancy to be associated with the risk for preeclampsia.[21] Kharaghani et al. in Tehran, Iran reported the prevalence of moderate to severe depression in preeclamptic women as 31.2% during pregnancy.[22]

In order to document the perinatal frequency of anxiety and depression disorders in women with hypertensive pregnancy disorders in our setting, we decided to carry out this study. It was our intention to determine disease prevalence and to define the socio-demographic and obstetrical characteristics of these patients.

METHODS

Authors carried out a cross-sectional descriptive study from October 1, 2015 to May 15, 2016 amongst pregnant women in the perinatal period (28weeks of gestation to 7days post-partum). These women with hypertensive pregnancy disorders were followed up in three tertiary care centers in Yaounde namely: the Yaounde Gynaeco-Obstetric and Pediatric Hospital (YGOPH), the Yaounde Central Hospital (YCH) and the Yaounde University Hospital Center (YUHC). These three hospitals receive women from all over the country. Authors excluded women with any prior history of psychiatric disorders.

Informations were obtained from consenting patients. By exploring patient's files and conducting an interview to selected patients, a pre-tested and validated questionnaire comprising three sections was fulfilled.

In section 1, authors sought out socio-demographic variables (age, gestational age, post-partum age, profession, religion, region of origin, marital status, monthly revenue, and educational status); and obstetrical variables (gravidity, parity, gestational age, number antenatal visits, pathologies in pregnancy, pregnancy complications, and whether sor not the pregnancy was desired). Equally obtained here were BP and proteinuria values. The patients were classified by Using ACOG classification by chronic hypertension, preeclampsia/eclampsia, superimposed preeclampsia on chronic HTN and gestational hypertension.[3] In section 2, we sought out psycho-social variables comprising couple life, support from family and relations, family history of anxiety, depression and psychiatric disorders as well as chronic diseases in the family.

Section 3 comprised tools to evaluate for anxiety as well as mental depression. Anxiety was evaluated for using the Generalized Anxiety Disorder 7-item by Spitzer et al.[23] The 7-items evaluate anxiety symptoms in the last two weeks preceding the consultation. For each item, we assigned a score of 0, 1, 2, and 3, to the response categories of 'not at all', 'several days', 'more than half the days', and 'nearly every day', respectively. We obtained the total by adding together the scores for the seven questions. Participants were classified according to their level of anxiety as mild anxiety (GAD-7 score <5), moderate anxiety (GAD-7 score between 5 to 9), moderate severe anxiety (GAD-7 score between 10 to 14), and severe anxiety (GAD-7 score ≥15). All patients with scores above 10 were considered as certainly having an anxiety disorder.

Mental depression was evaluated for using the Patient Health Questionnaires-9 by Spitzer et al.[24] Its 9 items evaluate for the presence of depressive symptoms in the last two weeks preceding the consultation. For each item, we assigned a score of 0, 1, 2, and 3, to the response categories of 'not at all', 'several days', 'more

Authors obtained the total by adding together the scores for the nine questions. With a possible total score of 27, patients were classified as absence of depression (PHQ-9 score: 0-4), mild depression (PHQ-9 score: 5-9), moderate depression (PHQ-9 score: 10-14), moderately severe depression (PHQ-9 score: 15-19), or severe depression (PHQ-9 score: 20-27). At the end of it all, patients who scored ≥10 suggestive of anxiety as well as depressive disorders were referred for appropriate psychiatric care.

Data entry was done via CSPro version 6.2 and then analyzed after exportation to SPSS version 20.0. Graphical representations were done using Microsoft Excel 2010.

RESULTS

Of 215 women recruited for the study, we analyzed data from 202 patients. Because of insufficient or incomplete data in the files, 13 (6%) patients were eliminated.

Study sites

Figure 1 shows the number of women recruited in the different study sites, with the bulk of our patients coming from the Yaounde Central Hospital (112/215; 55.5%).
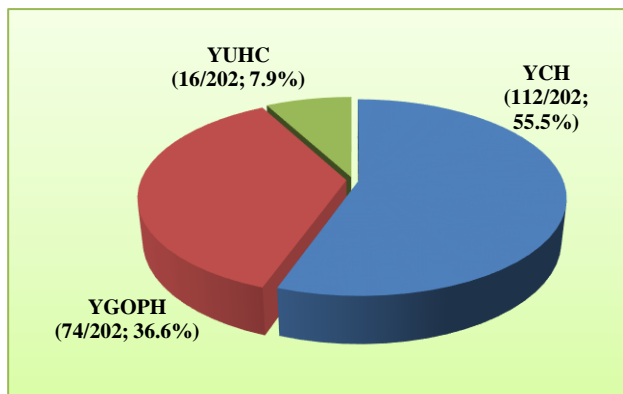

Figure 1: Patients distribution by hospital.

Socio demographic characteristics

Table 1 presents socio-demographic characteristics of the patients. The participants were aged between 13-43years. Most of them (93/202; 46.0%) were aged 20-29 years with a mean age of 25.9±6.4years.

Single women were more represented (96/202; 47.5%). Most of patients (197/202; 97.5%) had received at least

primary education, with 51.5% (104/202)) and 28.7% (58/202) having received secondary and tertiary education respectively.

About half of the women (50.5%; 102/202) had some form of employment in the public, private or informal sectors while 92 (45.5%) were students.

Many of our patients (148/202; 73.3%) earned less than 50,000FCFA (88 dollars) every month. Whereas 138 (68.3%) lived in urban areas, 64 (31.7%) were rural dwellers.

Table 1: Sociodemographic characteristics of the study population.

Variables	Number	Frequency (%)
Age		
<20	40	19.8
20-29	93	46.0
30-39	67	33.2
>40	2	1.0
Marital status		
Single	96	47.5
Married	61	30.2
Free union	40	19.8
Widow	4	2.0
Divorced	1	0.5
Level of education		
Non scolarised	5	2.5
Primary	35	17.3
Secondary	104	51.5
Tertiary	58	28.7
Profession		
Student	92	45.5
Housewife	39	19.3
Trader	12	5.9
Private sector worker	14	6.9
Civil servant	12	5.9
Informal sector	18	8.9
Unemployed	18	4.0
Others	7	3.5
Religion		
Catholic	135	66.8
Protestant	52	25.7
Muslim	15	7.4

Clinical characteristics

Table 2 presents the clinical characteristics of patients. Nullipara were the most represented among the patients (80.7%; 63/202).

Most of these patients delivered at term (80.7%; 163/202), (68.7%; 139/202) had no history of abortion had living children (89.7%; 181/202) and only half of the pregnancies were desired (51%; 103).

Table 2: Clinical characteristics of patients.

Variables	Number	Frequency (%)
Parity		
0	163	80.7
1	34	16.8
2-4	4	2.0
>4	1	0.5
Premature delivery		
Yes	39	19.3
No	163	80.7
Past history of abortion		
Yes	63	31.3
No	139	68.7
Having living children		
Yes	181	89.6
No	21	10.4
Desire of the conception		
Yes	103	51.0
No	99	49.0

Types of hypertensive disorders in the study population

Figure 2 reveals the distribution of hypertensive disorders in our study population. At 50.9% (103/202), severe preeclampsia was the most prevalent hypertensive disorder in these women, with a further 34.2% (69/202) developing eclampsia. Chronic hypertension was the least represented hypertensive disorder in our study population in 2.0% (4/202).
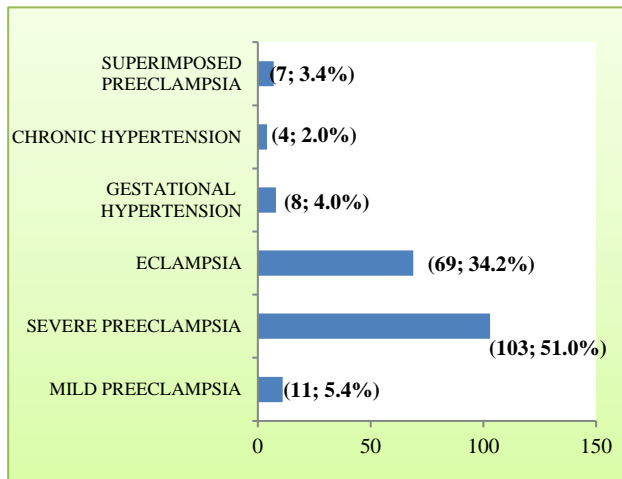

Figure 2: Distribution of hypertensive disorders in study population (N=202).

Prevalence of anxiety and depression in the study population

Figure 3 shows the prevalence of anxiety and Depression. In our study, 85.6% (173/202) of patient presented either anxiety or depression or both. Isolated anxiety was more prevalent than isolated depression (18.3% versus 5.3%) but most patients have both anxiety and depression (124/202; 61.3%).
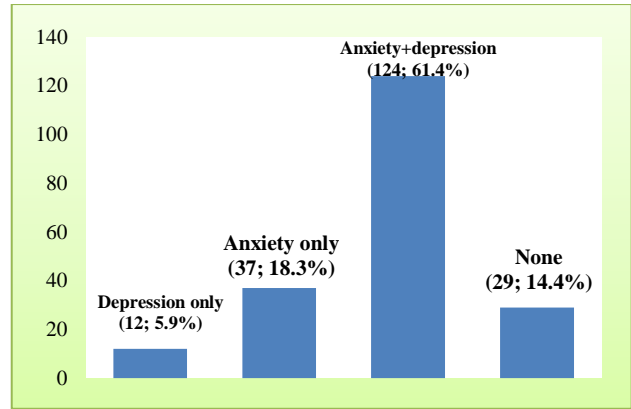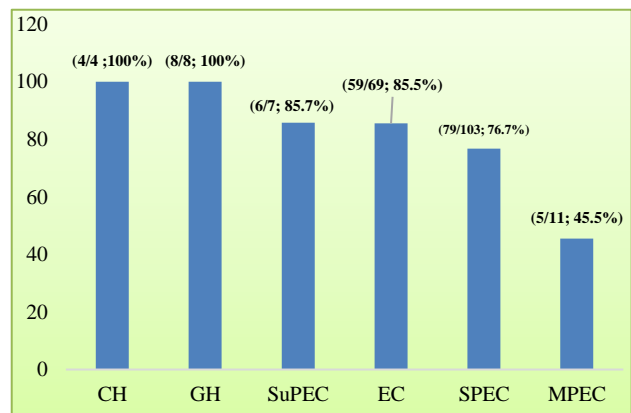

Figure 3: Distribution of hypertensive disorders in study population (N=202).

Anxiety and depression according to type of hypertensive disorder

Figure 4 shows distribution of anxiety according to the various hypertensive disorders in pregnancy.

Anxiety was encountered in all hypertensive subgroups with all women (100%) having gestational and chronic hypertension presenting with anxiety. Eclampsia was a remarkable source of anxiety, (85%; 59/69), followed by severe preeclampsia (76.7%; 79/103).

CH: Chronic Hypertension, GH: Gestational Hypertension, SPEC: Severe Preeclampsia, MPEC: Mild Preeclampsia, EC: Eclampsia, SuPEC: Superimposed Preeclampsia

Figure 4: Prevalence of anxiety by type of hypertensive disorder.

Figure 5 shows distribution of anxiety and depression according to hypertensive disorders in pregnancy. Depression was absent in women with chronic hypertension while only half of women with superimposed preeclampsia (7.1%; 4/7) presented with symptoms of depression. Gestational hypertension was more associated with depression (87.5%; 7/8) than other types of hypertension disorders.
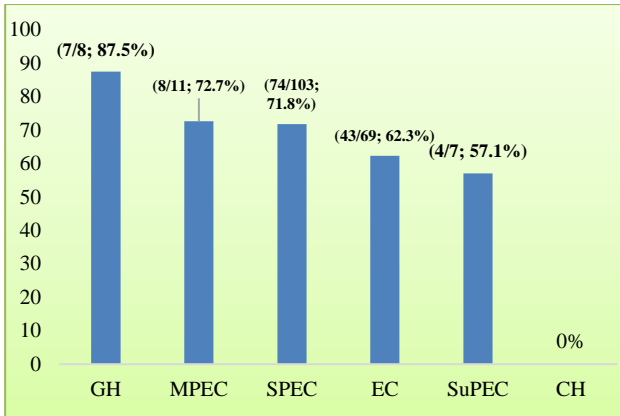
CH: Chronic Hypertension, GH: Gestational Hypertension, SPEC: Severe Preeclampsia, MPEC: Mild Preeclampsia, EC: Eclampsia, SuPEC: Superimposed Preeclampsia

Figure 5: Prevalence of depression by type of hypertensive disorder.

DISCUSSION

Hypertensive diseases in pregnancy and especially preeclampsia (the most common), often concern young women. The mean age of participants in our study was at 25.9 ± 6.4 years. This is much younger compared to studies by Adouard et al in France and Gourounti et al in Greece.[25,26] This we explained by the fact that in African settings women usually begin procreation much earlier than in the European setting. In addition, the bulk of our study population consisted of preeclamptic and eclamptic women, for which primiparity in very young women constitutes a significant risk factor. Our study however had similar age characteristics to the study by Anna Brandon et al in United States, whose sample size contained many primigravid women.[27] Unfortunately, these young women are most often single with a low level of education or low financial income.[28] Some authors have shown that in the presence of pregnancy complications, women with this profile often present with anxiety and depression.[29,30]

Married women represent 30.2% of our study population with the others being either celibate or living in free union. In the latter group more often, the majority of pregnancies are unplanned. This correlates findings by Glaúcia R. et al in Brazil who had identified unplanned pregnancies as an independent predictor of major depression.[31]

The symptoms of anxiety vary depending on the period of the woman's life. The postpartum period is more likely to cause anxiety in women compared to the general population.[32] Using the GAD-7 questionnaire, we obtained a 79.7% overall prevalence rate. In the literature, the prevalence of anxiety in the postpartum period is variable, but it is higher in the presence of complications of pregnancy and childbirth.[29] Our results are higher than in most studies found in the literature.[22,26] The difficult social conditions of the populations could be the common

feature of these studies. Preeclampsia will occur in women already in a precarious social situation. Most of our patients had a low level of income and a low level of education. This exposes them to poor quality pregnancy follow-up. In this context the diagnosis of a hypertensive disease will generate a state of anxiety, which could explain why this prevalence is so high. Prenatal counseling is effective in reducing anxiety in pregnant women.[33]

The prevalence of anxiety was heterogeneously distributed amongst the hypertensive disorders of pregnancy. At 76.7% and 85.5%, the anxiety score increased with increasing severity of hypertensive disease. Our results are consistent with literature, but the evolution of anxiety does not depend on the severity of hypertensive disease.[26,34]

The postpartum period is a period of great vulnerability for women to emotional disorders.[35] We obtained a perinatal depression prevalence of 67.3% with the PHQ-9 tool. This is a strong indication as to the existence of the pathology in our setting. Similar high results were found by Ferreira et al in women treated for chronic disease.[36] The lower prevalence in resource-adequate settings like France and the US could be explained by the better financial conditions of the women in their settings, larger numbers of planned and wanted pregnancies, as well as the fact that most evaluated participants without coexisting high-risk conditions.[37]

Whatever the case, the prevalence varies from one country to another around the globe.[25,27] As regards distribution across the various hypertensive subgroups, depression was absent in patients with chronic hypertension. This is most probably due to acceptance and adaptive mechanisms. Conflicting findings were described by authors according to relationship concerning severity of preeclampsia and depressive symptoms. Hoedjes et al founded that women with severe preeclampsia had more depressive symptoms than those with mild-preeclampsia.38 The difference in diagnostic tools could equally be responsible for the disparity in findings (PHQ-9 vs. EPDS). But Abedian et al did not reach the same results.[34]

Anxiety is very high in our study population. This may partly explain the high rate of patients with depression because anxiety can increase the risk of depression.[39] We observed a linear increase in the frequency of anxiety as a function of the severity of preeclampsia.

This we explained by the fact that anxiety is known to stimulate the sympathetic nervous system hence widespread vasoconstriction and further increases in BP. Studies are not unanimous as to this relationship.

The questionnaires used (GAD-7 and PHQ-) are auto-questionnaires. These tools serve more for screening than diagnosis. There was therefore a need for all positive

cases to be systematically reviewed by a psychiatrist or psychologist which wasn't always the case. This was especially because the extra care involved in consulting the psychiatrist was borne exclusively by the patient.

Also, the questions in the tools are highly subjective and formulated within a Western framework. Using these in our context poses a significant comprehension problem with regards some of the items in the tools. This could be a source of inappropriate responses and exaggeration of symptomatology by our participants.

The prevalence of anxiety and depression in women with hypertensive pregnancy disorders in the perinatal period is very high in our setting. Adequate emotional support and assessment of symptoms of anxiety and depression need to be incorporated into routine practice particularly in pregnant women with hypertensive disorders. Finally, the identification of associated factors in our setting is recommended.

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