

The Feasibility of Introducing Early Pregnancy Assessment Unit in Nigerian Hospitals: A Pilot Study from a Private Hospital in Enugu, Southeast Nigeria

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ABSTRACT

Background: Early pregnancy assessment unit (EPAU) is a dedicated unit that provides specialist care such as definitive ultrasonographic and biochemical assessment to women who have or have had vaginal bleeding or pain before 16 weeks of pregnancy. Such patients usually have a positive pregnancy test with a scan showing pregnancy of an unknown location, previous ectopic pregnancy, recurrent miscarriages, or previous molar pregnancy. Such a holistic and prompt approach leads to better outcome in the management of women with early pregnancy and other complications. **Aim:** This study aimed to describe the diagnosis and outcome of early pregnancy pain and bleeding, managed by rapid ultrasonographic and biochemical assessments by a dedicated gynecological team in a private hospital to determine the feasibility of establishing early pregnancy assessment units (EPAUs) in Nigeria. **Materials and Methods:** This is a cross-sectional study of eligible cases of early pregnancy bleeding and pain in a private gynecological hospital in Enugu, Nigeria. **Results:** During the 9-year study period, 160 women with early pregnancy pain or bleeding were analyzed. The mean age of the participants was 32.3 ± 7.2 years, and they were mostly multipara (68.7%) and Christians and of the Igbo tribe (91.3%). The final diagnosis after clinical and radiological evaluations showed that the majority had miscarriages (82.5%), while 17.5% had ectopic gestations. All the participants had their definitive diagnosis and treatment within 24 hours of presentation. There was no recorded case of maternal death. **Conclusion:** EPAUs are feasible in a Nigerian setting provided that trained, dedicated staff and equipment are provided.

KEYWORDS: *Early pregnancy assessment unit, EPAU, pain and bleeding*

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INTRODUCTION

The early pregnancy assessment unit (EPAU) is a dedicated unit where women with early miscarriage or ectopic pregnancy can receive a rapid and definitive ultrasonographic and biochemical assessment by specialized physicians for the purpose of prompt and better-quality care. Such an approach is known to offer better outcome in the management of women with early pregnancy and other complications. EPAU is now considered the optimal approach in the management of early miscarriage or ectopic pregnancy.^[1-3]

About 30% of women in early pregnancy may present with pain or bleeding as a result of miscarriage,

ectopic pregnancy, or a pregnancy of an unknown location.^[3,4]

In the last two decades, it has become conventional, especially in the more advanced countries of Europe and America for women with early pregnancy complications to be managed in a special EPAU.^[5] This provides an opportunity for immediate and definitive diagnosis

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at the time of presentation. EPAU also enables timely identification of women whose pregnancies were normal so they could easily be allowed home early.

In the areas where EPAU exists, the opportunity for detailed and empathic counseling for women suffering pregnancy loss exists. In general, visits are short and lasting just hours and over 90% receive definitive diagnosis in their first visit.^[5] Several surveys have reported better patient satisfaction following this approach to care possibly due to the timely diagnosis, counseling, and emotional support they received.^[6,7]

The compelling need for the establishment of EPAU in Nigeria has been established for many years. In a survey of Nigerian gynecologists (from all six geopolitical zones), about 94.8% of them felt that dedicated EPAU should be introduced to improve the care of women with early miscarriage and ectopic pregnancy.^[8] Yet, there is still no existing EPAU in Nigeria years after the survey possibly due to limitations of healthcare resources and facilities. To the best of our knowledge, there is no health institution in Nigeria that runs an organized and separate EPAU.

This study therefore aimed to determine the feasibility of establishing EPAU in Nigeria by describing the diagnosis and outcome in women who had early pregnancy pain and bleeding, in a private specialist hospital with a team of experienced gynecologists, medical officers, and nurses in Enugu, Southeast Nigeria.

MATERIALS AND METHODS

It was a prospective cross-sectional study of 160 cases of early pregnancy bleeding and pain that were presented at Primecare Hospital, a private gynecological hospital in Enugu, Nigeria, from March 2013 to February 2022. Women who had pain or bleeding in the first trimester of pregnancy were consecutively enrolled for 9 years to establish the diagnosis and outcome of the management offered.

The Primecare Hospital is manned by two gynecologists trained in ultrasound scanning, with facilities for transvaginal ultrasonography and biochemical tests including serum estimation of beta-human chorionic gonadotropin. The hospital has a dedicated nurse and support staff who work with the two gynecologists in the EPAU.

Participation in the study was only after obtaining written informed consent. Each of the participating women was managed individually according to their unique requirements. They had transvaginal ultrasonography and other necessary basic investigations including serum estimation of beta-human chorionic gonadotropin.

Transvaginal ultrasonography, serum pregnancy tests, and other investigations were performed for each patient within 1 hour of presentation. A definitive diagnosis was established, and treatment was offered within 24 hours of presentation. The details of the findings were entered into a pro forma, which contained the participant's biodata, clinical presentations, clinical diagnosis, ultrasound diagnosis, and final definitive diagnosis after the review of all the findings.

Data analysis was by descriptive and inferential statistics using Statistical Package for the Social Sciences software, version 20.0 for Windows (IBM Corporation, Armonk, NY, USA).

RESULTS

The mean age of the participants was 32 years \pm 2.0. They were mostly Christians and Igbo tribes, and 80% lived in urban areas. The details of the socio-demographic variables are shown in Table 1.

The final diagnosis (after clinical evaluations and investigations) showed that the majority of the women had miscarriages, while 17.5% had ectopic gestation. The detail is shown in Table 2.

Table 1: Socio-demographic characteristics of the study participants.

<i>n</i> =160	Frequency (%)
Parity	
Nullipara	48 (3)
Multipara	110 (68.7)
Grand multipara	2 (1.3)
Occupation	
Housewife	8 (5.0)
Civil servant	48 (30.0)
Student	34 (21.3)
Highly skilled professional	6 (3.8)
Artisans	22 (13.8)
Others	42 (26.3)
Tribe	
Igbo	146 (91.3)
Edo	2 (1.3)
Idoma	2 (1.3)
Igala	4 (2.5)
Hausa	2 (1.3)
Yoruba	2 (1.3)
Urhobo	2 (1.3)
Religion	
Christianity	160 (100)
Marital status	
Married	148 (92.5)
Single	12 (7.5)
Residence	
Urban	128 (80.0)
Rural	32 (20.0)

Table 2: Final diagnosis of women with early pregnancy pains and bleeding.

Final diagnosis (n=160)	Frequency (%)
Incomplete miscarriage	60 (37.5)
Missed miscarriage	36 (22.5)
Anembryonic gestation	22 (13.75)
Unruptured ectopic pregnancy	24 (15)
Ruptured ectopic pregnancy	4 (2.5)
Threatened miscarriage	4 (2.5)
Molar pregnancy	3 (1.9)
No abnormality	7 (95.65)

Table 3: Treatment received by patients.

Treatment (n = 160)	Frequency (%)
Manual vacuum aspiration (MVA)	121 (75.6)
Laparotomy + salpingectomy	25 (15.0)
Medical management of unruptured ectopic pregnancy	4 (2.5)
Suction evacuation	3 (1.9)
No treatment	7 (5.0)

All the participants ($n = 160$) had their definitive diagnosis and treatment within 24 hours of presentation. There was no recorded case of maternal death. Participants were offered treatment based on their definitive diagnosis. The details of the treatment are stated in Table 3.

DISCUSSION

Early pregnancy complications are inevitable and occur in about 15% to 20% of all pregnancies.^[9] This can result in significant physical and psychiatric morbidity.^[9] Women experience increased anxiety, emotions of grief, and guilt after a miscarriage, which can persist for several weeks after the pregnancy loss.^[9] These women are usually taken care of in the emergency room or general outpatient department by a nonspecialist medical officer.^[8] As a result of this, they are faced with long wait times and fragmented care from several healthcare providers.^[10] In a study conducted in the emergency department of an Australian hospital, these problems mentioned were similar before the introduction of the early pregnancy assessment protocol.^[11] Current evidence suggests that delays are avoided by having dedicated early pregnancy services, which provide direct access to an experienced sonographer or gynecologist at first contact with the health facility. According to a recent study, women who accessed EPAU services in the UK reported positive experiences but expressed displeasure about poor attention to their psychological health.^[12] Hence, the study recommended that EPAUs should be separated from general maternity services.^[12]

It has been shown that patient satisfaction with the medical care received after a miscarriage is improved when there is a follow-up appointment soon after the

loss, with sufficient time to discuss patients' feelings and questions.^[9] EPAUs provide a resource for women to receive treatment for pregnancy complications, as well as the appropriate follow-up appointments, thus enhancing the efficiency and quality of care provided.^[6]

Our study indicated that the definitive diagnosis and cause of early pregnancy pain and bleeding could be clarified quickly within one hour in a setting with EPAU. The most common cause was miscarriages, accounting for over 74% of the cases of early pregnancy pain and bleeding.

It was noteworthy that the results showed 15% of all the cases to be unruptured ectopic pregnancy compared with only 2.5% of ruptured ectopic pregnancies. This should be considered a huge window of opportunity in saving many lives as most of them would have presented as critical cases of ruptured ectopic gestation. Such cases may end up as maternal mortality or near miss, especially with our constraints in handling such emergencies. It is therefore likely that the useful introduction of EPAU in Nigeria is feasible and will improve maternal health outcomes. In our study, the majority of the patients had manual vacuum aspiration (MVA) for incomplete miscarriage, and few had laparotomy with salpingectomy ruptured and unruptured ectopic pregnancy, suction evacuation for molar pregnancy, and medical management of unruptured ectopic, while those who were diagnosed with having menstruation were reassured. These interventions occurred due to timely diagnosis facilitated by the availability of EPAU in our center.

In countries that have established the EPAU in the hospital, there is a significant change in the quality of care given to women who were diagnosed with complications in pregnancy.^[12] The services require accessible rooms, specialist and auxiliary nurse, consultant gynecologist trained in ultrasound scanning, point-of-care ultrasound machine, facilities to offer urine pregnancy test, serum beta-hCG assay, full blood count, Rhesus grouping, medications such as basic analgesics, antibiotics, anti-D immunoglobulin, and ergometrine, which are needed to achieve a good outcome.^[13]

To the best of my knowledge, in Nigeria, there is no hospital with this unit, EPAU, and this stresses a lot of women who are diagnosed with these complications. The findings in this study showed that women diagnosed with these complications were many, and since they are receiving care in the general outpatient units, the complications were likely to increase because of long waiting time, searching of the patients' record, and other administrative issues.

This study has shown that it is indeed feasible to establish EPAUs in Nigeria and take full advantage of timely care to women with early pregnancy complications.

Of the 160 women in this series, 96 (60.0%) had miscarriages, while 28 (17.5%) had ectopic gestation. The majority of the women with ectopic pregnancy (24 of 28) representing 15% of the entire series had unruptured ectopic gestation, while only (4 of 28) representing 2.5% had ruptured ectopic pregnancy. The timely detection of ectopic gestation before it ruptures is an additional major advantage of establishing EPAU in our setting. This will enable better management of the ectopic pregnancy before it ruptures and becomes a near miss.

A study conducted in a hospital observed that after the establishment of EPAU, the nursing staff now spend less time on administration trying to find results and arrange ultrasonography and apologizing to and caring for patients distressed by the delay in diagnosis and treatment.^[3] The out-of-hour work for junior staff has decreased. The assessment of these patients when the doctors have just come on duty seems to have increased their interest and has probably improved their management. The doctors receive immediate summaries of their patients' diagnoses and treatment and have expressed particular satisfaction with the ease of access to ultrasonography in cases of threatened miscarriage. Patients feel that their condition is a priority to the staff. Their condition is usually diagnosed in less than two hours, and treatment is completed in less than a day.

It would have been better to conduct this study in a public tertiary or secondary health facility, but this may require some changes in policies and protocol, which may need administrative processes; hence, we decided to do this initial pilot in a private specialist hospital.

Our findings clearly demonstrate that an EPAU has a positive effect on the quality of care provided to women with early pregnancy complications, and it is feasible to be established in Nigeria.

Some of the possible limitations include that this study was performed in a private specialist hospital with a relatively limited number of suitable participants.

CONCLUSIONS

EPAUs are feasible in our setting with dedicated staff, and timely baseline diagnostic investigations such as ultrasound and pregnancy tests are available.

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Conflicts of interest

There are no conflicts of interest.

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