Awareness and desire for epidural analgesia in labour among pregnant women attending antenatal clinic in Jos University Teaching Hospital

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Abstract

Background: Pain relief is an integral part of labour management. Epidural analgesia is the goal standard in labour, however not readily available in most Nigerian obstetrics units. There is little information on the views of pregnant women on epidural analgesia.

Methods: A sample of 152 consenting pregnant women from 28 weeks of gestation and above attending the antenatal clinic from 1st September, 2021 to 31st December 2021 in Jos University Teaching Hospital (JUTH), Nigeria, were recruited and interviewed via an interviewer's administered questionnaire. The interview questions included demographic characteristics and questions assessing the awareness and desire for epidural analgesia in labour.

Results: 152 women were surveyed, 19(12.5%) were aware of epidural analgesia. Awareness was affected by level of education ($\chi 2$ = 43.669; p=0.0001) and parity ($\chi 2$ = 25.160; p=0.0001). Majority of the participants 133(87.5%) had poor knowledge on epidural analgesia. 77(81.1%) of the 95 study participants that declined its use was due to cost of epidural analgesia.

Conclusion: Most of the expectant mothers in Jos University Teaching Hospital were unaware of the role epidural analgesia plays in pain alleviation in labour and were not willing to try it when in labour; due to its cost and the fear of side effects. However, awareness level needs to be improved and for this purpose, evidence-based information on epidural analgesia should be provided during the antenatal period to improve knowledge and attitude regarding epidural analgesia.

Keywords: epidural analgesia, pain, side effects, awareness, desire, labour

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Introduction

Labour is defined as the occurrence of uterine contractions of sufficient frequency of one contraction every two to three minutes, intensity, and duration of 40 to 60 seconds resulting in effacement or shortening and dilatation of the cervix.[1] Pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage.[2] Labour pain is an intense, unpleasant experience with significant physiologic consequences on the mother and the fetus. Labour pain can vary considerably in intensity among individuals.[2]

Epidural analgesia is the gold standard with regards to other forms of anaesthesia for labour analgesia and it is widely recognized and used as an effective method of pain relief in labour. It involves the injection of an anaesthetic agent into the lower back to decrease the sensation of pain felt during labour.[3] Epidural analgesia reverses the adverse ventilatory effects of pain and results in an increase in oxygen tension in both mother and foetus, which may be beneficial, especially when additional conditions contributing to foetal or maternal hypoxia are also present. Hence, epidural analgesia should be strongly recommended to all patients who do not have any contraindications to this method of treatment[4].

Despite its benefits, patient's refusal, bleeding dyscrasia (coagulopathy), infection at the site of needle insertion, raised intracranial pressure, poor skills on the part of the anaesthetist, severe maternal hemorrhage, and maternal septicemia are contraindications to its use.[5] It may be associated with some complications such as hypotension which is the most common complication, prolonged second stage of labour, urinary retention, postdural puncture headache are also common.[3,5] Despite the effectiveness of epidural analgesia in labour, it is not practiced in many obstetric units in Nigeria[5]. The decision to use epidural analgesia during labour is affected by many factors such as the culture and background of the women, their knowledge, financial status and educational level.[6]

A study carried out on awareness and perception of epidural labour analgesia among pregnant women in National Referral Hospital India 61.4% of the participants knew that labour epidural services were available and 37.5% got information through media.[7] Also, another study carried out in India on awareness on labour analgesia, role of anaesthesiologists in labour analgesia and neonatal resuscitation 10% of study participants were aware of epidural analgesia.[8]

A study on provision of epidural analgesia during labour according to maternal birth place showed that pregnant women from sub-Saharan Africa in labour were least likely to be provided epidural analgesia compared to native born women from latin America and Caribbean countries.[9]

In another cross-sectional study carried out at the Alex Ekwueme Federal University Teaching Hospital, Abakaliki on perception and practice of epidural

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analgesia among women attending antenatal clinic, 43.3% of women were aware of the use of epidural analgesia in labour but only 7.5% had used it[10].

A study on awareness and desirability of pain relief in labour among pregnant women in Zaria showed 56% were aware of labour analgesia and most got their information from nurses.[11] Contemporary obstetrics in sub-Saharan Africa is yet to meet the analgesic needs of most women during childbirth for a satisfactory birth experience and expectedly, obstetricians have a major role to play in achieving this.[12]

This research was conducted in response to the concerns of the poor use of epidural analgesia among women in labour in sub-Saharan Africa. The aim of this study was to identify the awareness and desire for epidural analgesia in labour among pregnant women attending antenatal at the Jos University Teaching Hospital

Method

This was an institutional based cross-sectional descriptive study in which an interviewer structured questionnaire was administered to parturients attending the antenatal clinic at the Jos University Teaching Hospital (JUTH). JUTH is a tertiary health facility in Jos the capital of Plateau state, North central Nigeria.[13,14] The study population comprised of consenting pregnant women from 28 weeks gestation and above attending the antenatal clinic at the Jos University Teaching Hospital. The study included all consenting pregnant women in their third trimester who had indications for vaginal delivery and excluded all pregnant women who were billed for an elective cesarean section, had contraindications to epidural analgesia such as spine abnormalities, coagulation abnormalities e.t.c.

The minimum sample size (n) was calculated using the formula $n = z2pq/d^2$.[15]

n = minimum sample size

z = standard normal deviation corresponding to 95% confidence interval = 1.96

p = proportion of study participants that were aware of epidural analgesia=10.0%= 0.10[7]

q = complementary probability (1-p) = 0.9

d = maximum error margin tolerated 5% = 0.05

therefore,

n = (1.96)2 X 0.10 X (1-0.10)/0.052

n = 3.8416 X 0.10 X 0.9/0.0025

n = 138

An attrition rate of 10% was calculated for those with incomplete responses bringing the sample size to 152.

A convenience sampling technique was used during visits for their routine antenatal care. All consenting paturients that met the inclusion criteria had the study explained to them, and were subsequently educated on epidural analgesia to enable them answer section C of the questionnaire. The instrument used for data collection was an interviewer-administered questionnaire which was administered from 1st September to 31st December, 2021. The interviewers-administered questionnaire had sections on awareness of epidural analgesia, labour pains perception, its control and willingness to accept analgesia. The counselling on epidural analgesia was done by the researcher. Data obtained was analysed using Statistical Package for Social Sciences (SPSS) version 23 (IBM Corporation, Armonk, NY USA). Frequencies were generated and Chi-square test was used to explore associations. Level of significance was set at 0.05. The association between variables were determined with the Pearsons Chi square test.[16]

Results

Demographic characteristics of the study participants

Most of the participants 108(71.1%) were aged 20-29 years. Overall mean age was 26±4.7 years.

Table 1: Demographic characteristics of the study participants (n = 152)

Variable	F	%	Mean±SD
Age group (years)			26.3±4.7
< 20	9	5.9	
20-29	108	71.1	
30-39	35	23.0	
Religion			
Christianity		55.9	
Islam	67	44.1	
Marital status			
married	137	90.1	
Single	14	9.2	
Widowed	1	0.7	
Education			
None	9	5.9	
Primary	44	28.9	
Secondary	53	34.9	
Tertiary	46	30.3	
Tribe			
Hausa	35	35.5%	
Berom	14	13.2%	
Fulani	10	9.2%	
Others	93	42.1%	
Parity			
Nulliparous	40	41.4%	
Primiparous	24	24.3%	
Multiparous	88	34.2%	

* Others (Ron, Afizere, Igbo, Yoruba, Mwaghavul, Ngas)

The study constituted of 85(55.9%) Christians and 67 (44.1%) Muslims, 90.1% of the participants were married while 14(9.2%) and 1(0.7%) were single and widowed respectively. Educational background of participants revealed 46(30.3%) had tertiary education while 44(28.9%), 53(34.9%), and 9(5.9%) had secondary education, primary education and no formal education respectively. The major tribes were Hausa (35.5%), Berom (13.2%), Fulani (9.2%).

Majority 88(34.2%) of the study participants were multiparous women.

Awareness on Epidural Analgesia

The study revealed that most of the participants 133 (87.5%) were not aware of Epidural Analgesia. This implies that only 19(12.5%) were aware of epidural analgesia. Out of 19 participants who were aware of epidural analgesia, more than half (57.9%) heard about it through friends and relatives while a few heard it from other sources.

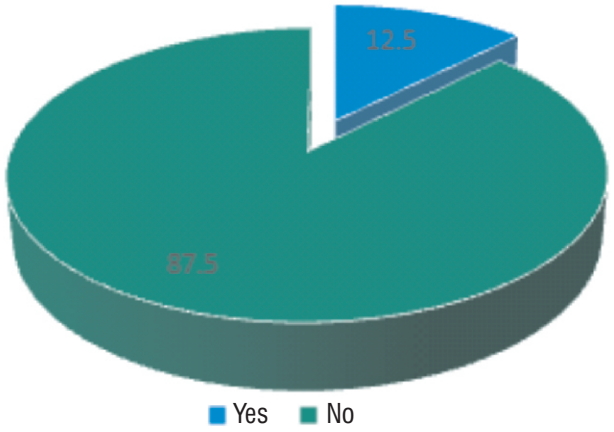

Figure 1: Awareness on Epidural Analgesia (n = 152)

Table 2: Source of Information on Epidural Analgesia

Source of Awareness	Frequency	%
Media	2	10.5
Pamphlets in the antenatal clinic	1	5.3
Antenatal talk	5	26.3
Friends or relatives	11	57.9
Total	19	100

Education and Awareness on Epidural Analgesia

Table 3 represents the cross tabulation between awareness on epidural analgesia and level of education of the study participants, and also the awareness on epidural analgesia and number of parturients with previous confinements in the study population. It shows that the majority of the women who were aware of epidural analgesia had tertiary level of education. This is in contrast to other women who had lower levels of education. The Pearson Chi-Square showed statistical significance between awareness and education ($p < 0.05$). Majority of the women 68.4% who were aware of epidural analgesia were multipara women. The Pearson Chi-Square showed statistical significance between awareness and parity ($p < 0.005$).

Table 3: Education, Parity and Awareness on Epidural Analgesia

Education	Awareness on epidural analgesia		
	Yes	No	Total
None	1(11.1)	8(88.9)	9(100.0)
Primary	0(0.0)	44(33.1)	44(28.9)
Secondary	0(0.0)	53(39.8)	53(34.9)
Tertiary	18(94.7)	28(21.1)	46(30.3)
Total	19(100.0)	133(100.0)	152(100.0)
$\chi 2 = 43.669$; p=0.0001			
Number of previous pregnancies/pregnancy			
0	1(5.3)	62(46.6)	63(41.4)
1	13(68.4)	24(18.0)	37(24.3)
2-4	5(26.3)	41(30.8)	46(30.3)
≥ 5	0(0.0)	6(4.5)	6(3.9)
Total	19(100.0)	133(100.0)	152(100.0)
$\chi 2 = 25.160$; p=0.0001			

Knowledge and use of epidural analgesia in labour

The study revealed that majority of the participants 133(87.5%) did not know the function of epidural analgesia. Only 17(11.2%) had used epidural analgesia in labour, out of which 12(70.6%) were very satisfied. However, 2(11.8%) out of 17 who used epidural analgesia were not satisfied. Furthermore, out of the 17 who used epidural analgesia in previous confinement(s), 16(94.2%) had side effects, out of which 75.0% of the side effects were headache while 4(25.0%) had low blood pressure.

Majority of the participants (86.8%) were not sure whether JUTH offers epidural analgesia services in labour. Similarly, the majority of the participants (82.9%) were not aware of the cost of epidural analgesia in JUTH.

Desirability to have Epidural Analgesia

Table 6 revealed that 57(37.5%) of study participants desired to have epidural analgesia in their next delivery after epidural analgesia was discussed with them. However, more than half 95(62.5%) were against the use of epidural analgesia in the next delivery, out of which majority 77(81.1%) declined due to the cost, while others declined due to fear of side effects and the fact that they can bear the pain of the labour respectively.

Majority of the participants (88.2%) would want epidural analgesia to be included as an option in their

delivery list (table 6).

Table 5: Knowledge and Practice of epidural analgesia in labour

Knowledge and Use	F	%
What is the function of epidural analgesia in labour		
To relieve pain	19	12.5
I don't know	133	87.5
Have you used epidural analgesia in previous pregnancies/pregnancy		
Yes	17	11.2
No	135	88.8
if yes, how satisfied were you		
Very satisfied	12	70.6
Partly satisfied	3	17.6
Not satisfied	2	11.8
Do you know or have you experienced any side effect with its use		
Yes	16	94.2
No	1	5.8
if yes, name the side effect (s)		
Headache	12	75.0
Low Blood Pressure	4	25.0
Others	0	0
Do you know whether JUTH offers an epidural analgesia service		
Yes	8	5.3
No	12	7.9
Not sure	132	86.8
Are you aware of the cost of epidural analgesia in JUTH		
Yes	8	5.3
No	18	11.8
Not sure	126	82.9
if yes, how much (₦)		
10,000.00	1	12.5
15,000.00	7	87.5
Others	0	0

Discussion

The study showed that majority of the respondents were not aware of epidural analgesia in labour, this is similar to a study carried out on women attending antenatal clinic in Federal Teaching Hospital, Abakaliki where less than half of the respondents, about 43.3% were aware of the use of epidural analgesia in labour.[10] More than half of the study participants had been pregnant and majority had tertiary level of education, this is possibly due to the fact that the information on epidural analgesia is not included in the antenatal health talks by health care professionals at the antenatal clinic in Jos University Teaching Hospital. A study done on awareness of epidural analgesia among pregnant women in Jeddah Saudi Arabia where the level of awareness of epidural analgesia was 64.9%, paturients attending the antenatal clinics were given talks on epidural analgesia, many liked such educational session during the antenatal visit. Those who liked the idea were provided with their preferred methods during the doctor's visits special session by the anaesthetist or by means of video followed by those who preferred methods such as through written pamphlets.[17]

Table 6: Desirability to have Epidural Analgesia

Desirability	Frequency	%
Will you desire to have epidural analgesia in this current pregnancy when in labour (N=152)		
Yes	57	37.5
No	95	62.5
if no what is/are your reason (s) (N=95)		
Cost	77	81.1
Side effects	3	3.2
I can bear pain	13	13.7
Others	2	2.1
Will you want epidural analgesia to be included as an option in your delivery list(N=152)		
Yes	134	88.2
No	4	2.6
I don't know	14	9.2

From this study, out of 19 participants who were aware of epidural analgesia, more than half heard about it through friends and relatives while others heard about it through the media, pamphlets in the antenatal clinic and antenatal talks in other facilities, this suggests that information dissemination on epidural analgesia is poor among women attending antenatal clinics in Jos University Teaching Hospital

Majority of the women who were aware of epidural analgesia had tertiary education. Out of 19 study participants who were aware of epidural analgesia, majority had tertiary level of education. This is in contrast to other women who had lower level of education. A study in Lagos found a significant association between the educational status of the respondents and their knowledge of obstetric analgesia.[18] Educational status is a significant factor associated with knowledge of epidural analgesia and it was theorized that patients with a higher level of education will have a better understanding of the true risks and benefits of epidural analgesia and the actual risk magnitude due to their level of exposure.[19]

There was a significantly high level of association between awareness and parity, meaning that the multiparous women were more informed of epidural

analgesia compared to primigravid women. This is possibly so because the multiparous women have gone through labour in the past and they either used it or were told about epidural analgesia.

Out of the paturients who were aware of epidural analgesia only few had used it. Despite the fact that epidural analgesia is seen as the gold standard for labour pain relief in the modern obstetric practice, only few parturient accessed this pain relief method especially in low socioeconomic settings.[17] In a similar study carried out on awareness and perception of epidural labour analgesia amongst parturient in south eastern Nigeria only 4.8% of the respondents had epidural analgesia in previous confinement.[20]

Almost all the study participants who had used epidural analgesia had knowledge of side effects. The commonest side effect known by study participants was headache and hypotension.

Most side effects of spinal or epidural anesthesia are secondary to block of the sympathetic nerve fibers that accompany the anterior roots of the spinal thoracic and upper lumbar nerves (thoracolumbar outflow).[21] The blood pressure falls as a result of loss of arterial resistance and venous pooling. In the past, postdural puncture headache (PDPH) due to leakage of cerebrospinal fluid through the needle hole in the dura was an early postoperative complication in up to 15% of patients. Small caliber needles (25F) decrease the incidence of headache to 8–10%. Rarely, spinal or epidural anesthesia caused nerve injury and transient or permanent hypesthesia or paresthesia.[21]

Those that desired to have epidural analgesia in their next delivery after epidural analgesia was discussed with them were less than half of the study participants. However, the majority declined due to the cost, while others declined due to fear of side effects and the fact that they can bear the pain of the labour respectively. Acceptance of epidural analgesia is needed because Epidural analgesia is considered an effective measure for labor pain relief if administered timely, it allows women to rest if the labour is prolonged, and remain an active participant in the child birthing. If instrumental delivery is needed, epidural analgesia will help to decrease the discomfort, and if a cesarean section is required it allows the paturient stay awake during the procedure[22]. This is in contrast to a study conducted on knowledge and attitude regarding epidural analgesia among 60 expectant mothers in Ludhiana, revealed that 96.7 % had positive attitude and showed willingness to opt for epidural analgesia during delivery and only 3.3 % had negative attitude towards epidural analgesia.[24] Also a study on awareness of epidural analgesia in labour and its acceptability by paturients in a tertiary hospital in Cameroon, showed that 60.71% of the study participants expressed their willingness to accept epidural analgesia in future labour for various reasons including need for a comfortable labour (23.81%), to experiment (23.81%), and because of past experience (9.83%). Majority of participants who refused epidural analgesia were due to fear of related risks and complications[23]. The study participants in Cameroon were more willing to have epidural analgesia in their next delivery compared to the study participants in the Jos University Teaching Hospital due to the reasons stated above.

The limitation on the study was recall bias. However, the findings of the study show the need to make information on epidural analgesia available to women who attend antenatal clinic and form a background for further studies.

Conclusion

Most of the expectant mothers in the Jos University Teaching Hospital were unaware of the role epidural analgesia plays in pain alleviation in labour and were not willing to try it when in labour; due to its cost and the fear of side effects. However, awareness level needs to be improved and for this purpose, evidence-based information on epidural analgesia should be provided during the antenatal period to improve knowledge and attitude regarding epidural analgesia.

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