



A Single Institution Study of Attitudes of Primigravidae to Routine Clinical Pelvimetry

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Authors' contributions

This work was carried out in collaboration between all authors. Author TCO designed the study, wrote the protocol, and wrote the first draft of the manuscript. Authors JOE and CIO managed the literature searches, analyses of the study, while authors LCI, CCT and SEI carried out the statistical analysis. All authors read and approved the final manuscript.

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ABSTRACT

Background: Pelvimetry is a poor predictor of obstetric outcome. The predictive value of clinical pelvimetry remains limited except in extreme pelvic contracture or an excessively large fetus.

Objective: To determine the attitudes of primigravidae to routine clinical pelvimetry.

Subjects and Methods: This was a cross-sectional study of primigravidae at the University of Nigeria Teaching Hospital (UNTH), Enugu between January 1st and December 31st, 2009. Self-administered, structured, and pre-tested questionnaires were distributed to the consenting selected women by trained medical interns. Data was analyzed using SPSS version 16. P < 0.05 was considered statistically significant.

Results: A total of 195 primigravidae were selected at random for this study. One hundred and thirty eight primigravidae (138/195, 70.77%) were aware of clinical pelvimetry while 29.23%

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(57/195) were not aware of clinical pelvimetry. One hundred and twenty five primigravidae (90.58%, 125/138) desired clinical pelvimetry to continue while thirteen (9.42%, 13/138) did not desire clinical pelvimetry to continue. There was statistically significant difference between those who were aware and unaware of pelvimetry in their desire for pelvimetry [$X^2=18.903$, $p=0.0001$, OR 5.2, 95% confidence interval=2.20 to 12.44].

Conclusion: There is profound awareness and the desire to continue clinical pelvimetry among primigravidae at the UNTH, Enugu, Nigeria, where majority of the women showed strong preference for it.

Keywords: Attitudes; primigravida; routine clinical pelvimetry; Enugu; Nigeria.

1. INTRODUCTION

Clinical pelvimetry is the assessment of the maternal pelvis in relation to the fetal head with the aim of predicting mode of delivery [1-3]. It is performed in the antenatal period or during labour. It is inexpensive and a method of assessing the pelvis at three levels [the brim, mid-cavity and outlet [1]. It may be of predictive value to the fetal outcome in primigravidae [2] and provides prognostic information relating to the pelvic measurement and architecture [3].

Clinical pelvimetry is inadequate in precisely assessing all the important pelvic dimensions accurately and identifying women that are likely to suffer cephalopelvic disproportion (CPD) [1,4]. Further investigations using radiographic methods (X-ray and computerized tomography (CT) pelvimetry), have been done in attempt to provide more accurate and clinically predictive information. Radiographic methods though readily available, less expensive, useful for obtaining reliable and reproducible information have limited utility in labour management [1,4-7]. Concerns about fetal radiation exposure combined with dynamic changes that occur in the pelvis during the course of labour, limit the clinical usefulness of radiographic methods. The use of radiologic pelvimetry in modern obstetrics is primarily limited to the use of CT pelvimetry when evaluating a patient for vaginal breech delivery [8]. Magnetic resonance imaging (MRI) provides excellent imagery of the pelvic dimensions with no radiation exposure to the fetus. However, the cost and limited availability of this method limit its usefulness [1,3,8].

Routine clinical pelvimetry is controversial but studies have shown that it is relevant and should be encouraged in all primigravidae in the environment where adequate fetal monitoring facilities are not widely available [4,8,9]. Furthermore, the stature of the woman and the estimated fetal weight must be borne in mind [10-13]. Other indications for pelvimetry include trial

of scar where the caesarean section is due to non-recurrent factor, childhood rickets, rachitic pelvis, kyphoscoliosis and previous trauma that involved the pelvic bones [1,10,12].

In recent times, pelvimetry is declining and poorly documented [14,15], because some clinicians are of the opinion that fetus is the best pelvimeter and it is a waste of time and energy, a potential liability, and an unnecessary discomfort for pregnant women [15]. However, this has resulted in lack of skills for pelvimetry among residents and no emphasis is laid in some tertiary hospitals for this acquisition [15].

Clinical pelvimetry involves a detailed bimanual examination in which various diameters of the pelvis are estimated and recorded. There is incomplete information in the medical literature to support routine clinical pelvimetry worldwide [15-18]. It is clearly documented that clinical pelvimetry does not influence labour and delivery management [15,16]. Some authors have questioned the need for performing routine clinical pelvimetry as part of prenatal care, since it does not precisely assess all the important pelvic dimensions accurately and identifying women that are likely to suffer cephalopelvic disproportion [15,16]. The reasons for routine clinical pelvimetry in some centres in Nigeria are for documentation, the desire by the women to know the sizes of their pelvises and to rule out contracted pelvis [10,12]. However, it should be encouraged for all primigravidae, especially in areas with lack of medical facilities. Antenatal assessment of the female pelvis gives positive effect on the fetal outcome [9].

The aim of this study was to determine the attitudes of primigravidae to clinical pelvimetry in our locality.

2. SUBJECTS AND METHODS

This was a cross-sectional study carried out at the antenatal clinic of the University of Nigeria

Teaching Hospital, Enugu, between 1st January and 31st December, 2009.

The subjects were primigravidae, randomly selected using table of random numbers.

The inclusion criteria were primigravidae who booked for antenatal care at the UNTH, Enugu whose gestational ages were between 34 and 36 weeks. Those with non-cephalic pregnancies, breech presentations, multiple pregnancies, those that had been counseled for Caesarean section for various reasons, and women who opted out were excluded.

Following individual counseling of eligible participants, self-administered, structured, and pre-tested questionnaires were distributed to the consenting selected women by trained medical interns. Data sought included the socio-demographic characteristics of the respondents (age, marital status, tribe, occupation, parity, maternal height, maternal weight, religion and educational level of the patient). The patients' awareness, source of information, and their attitude to clinical pelvimetry were also evaluated. The patients' desire for pelvimetry and its continuation on women were also evaluated.

Ethical clearance for the study was obtained from the institutional review board of the UNTH, Enugu.

2.1 The Procedure for Clinical Pelvimetry

Clinical pelvimetry is carried out in the antenatal clinics and labour room by a trained senior registrar or obstetrician under aseptic condition. The pelvis is assessed at three levels: inlet (brim), mid-cavity and outlet. The gloved fore and middle fingers of the right hand are passed into the vagina and advanced forward to attempt to reach the sacral promontory. The distance between the sacral promontory and the lower margin of the pubis symphysis is called diagonal conjugate and is usually more than 12.5cm. The sacral promontory is not easily reached in adequate pelvis.

The mid-cavity is assessed by running the examining finger from the sacral promontory down the anterior surface of the sacrum. This is usually a smooth concavity in a normal pelvis. Narrowing of the mid-cavity is suggested by straight sacrum or slight convexity. Mobility of the coccyx is also checked. The fingers are then swung to the right and left of the pelvis side wall

to feel for the prominence of the ischial spines. Prominence of the ischial spine suggests contracted mid-cavity and is often associated with deep transverse arrest. Finally, the two examining fingers are fitted into the subpubic arch to assess if the subpubic arch easily admits the two fingers as with a normal subpubic arch.

The distance between the ischial tuberosities which measures the transverse diameter of the outlet is then assessed. Failure to admit the knuckle of the four fingers of the right hand, suggest a considerable reduced pelvic outlet. The suppleness of the perineum is the last to be checked.

2.2 Statistical Methods

Sample size was determined using the formula:

$$N = Z^2PQ/E^2.$$

Where Z is the coefficient of Z statistics obtained from normal distribution table i.e. standard error at 95% Confidence interval (Z=1.96).

P=Prevalence rate of cephalopelvic disproportion in the population (7% from study in Zaire) [13].

Q= 100-P

E= Sample error tolerated (in percent) = 5%.

Minimum sample size (N) = $1.96^2 \times 7 \times 100 / 5^2 = 3.84 \times 7 \times 93 / 25 = 2,499.84 / 25 = 99.99 = 100$.

Minimum acceptable sample size for the study= 100. A total of 195 primigravidae were selected for this study.

Statistical analysis was both descriptive and inferential at 95% confidence level using Statistical Package for Social Sciences (SPSS) computer software version 16 (SPSS Inc. Chicago, IL, USA). Frequency tables were generated for relevant variables and discrete variables were analyzed using Chi-square test. $p < 0.05$ was considered statistically significant.

3. RESULTS

A total of 195 primigravidae were selected at random. Of these 5.13% (10/195) were less than 20 years of age, 53.84% (105/195) were between 21-30 years, 37.44% (73/195) were between 31-40 years and 3.59% (7/195) were between 41-50 years. One hundred and seventy (87.18%, 170/195) were Igbo, 5.12% (10/195) were Yoruba, 3.60% (7/195) were Hausa and 4.10% (8/195) were other ethnic groups. Eighty seven (44.62%, 87/195) were civil servants, 30.26%

(59/195) were self-employed, 13.84% (27/195) were students, 11.28% (22/195) were unemployed. One hundred and eighty one (92.82%, 181/195) were Christians, 6.67% (13/195) were Moslems while 0.51% (1/195) was a pagan.

One hundred and thirty five (69.23%, 135/195) of them had tertiary education, 25.13% (49/195) had secondary education while 5.64% (11/195) had primary education. One hundred and thirty eight (70.77%, 138/195) were aware of clinical pelvimetry while 29.23% (57/195) were not aware of clinical pelvimetry as represented in Table 1. The source of information about clinical pelvimetry is as represented in Table 2.

Table 1. Patients' awareness of pelvic assessment (PELVIMETRY)

Awareness of pelvimetry	Response	Percentage
Aware	138	70.77
Not aware	57	29.23
Total	195	100

One hundred and twenty five (90.58%, 125/138) desired clinical pelvimetry to continue while thirteen (9.42%, 13/138) did not desire clinical pelvimetry to continue as represented in Table 3.

Table 2. Patients' sources of information of pelvimetry

Source of information	Frequency	Percentage
Friends and relatives	58	42.03
Media (Newspaper, News)	9	6.52
Medical Personnel	71	51.45
Total	138	100

Table 3. Awareness and desire

Parameter	Aware	Unaware
Desire to continue Pelvimetry	125	37
No desire to continue Pelvimetry	13	20
Total	138	57

$\chi^2=18.903, p=0.0001, OR=5.2, 95\% \text{ confidence interval}=2.20 \text{ to } 12.44$

There was statistically significant difference between those who were aware and unaware of pelvimetry in their desire for pelvimetry.

4. DISCUSSION

The awareness, desire for pelvimetry and desire for continuation of clinical pelvimetry at the UNTH, Enugu is high. This is comparable and very close to an earlier study in Ahmadu Bello University Teaching Hospital (ABUTH), Zaria, Nigeria by Sule and Matawa [9] in 2005. There is a strong association between awareness, desire for pelvimetry and desire for continuation of clinical pelvimetry among the respondents in this study. Majority of the women fell into 21-30 years age group. This age group is associated with the reproductive age of women in this environment. Sixty eight percent (68%) of the women had tertiary education so they were enlightened and more likely to seek maternity care. Most of the women (71%) were aware of clinical pelvimetry with majority of them (52%) being informed by medical personnel. Majority of the women (90%) want clinical pelvimetry to be performed on them for reasons related to the perceived beneficial effect on pregnancy outcome and need for continuation of pelvimetry in this environment where adequate labour monitoring facilities are not widely available [4,8,9]. This could be as a result of their belief that clinical pelvimetry is necessary for optimal outcome of pregnancy. Thirteen percent of them do not want clinical pelvimetry probably because they feel it is an unnecessary discomfort to them as reported by Blackadar and Viera [15].

In this study there was significant awareness of pelvimetry, possibly because the study was done in a city where all the respondents had primary education and above. The respondents showed awareness of clinical pelvimetry possibly because of routine clinical pelvimetry done at the UNTH, Enugu. This observation was also noted at the ABUTH, Zaria, where routine clinical pelvimetry is also carried out [9]. There was significant desire because of awareness of clinical pelvimetry and the routine nature of the procedure in the centre where this study was done. There was also significant desire for continuation of pelvimetry among the respondents. Majority of the patients want clinical pelvimetry to be done on every primigravida and they desire it continued. However, these women are not aware of the place of pelvimetry in modern obstetrics.

In spite of the problems and controversies of clinical pelvimetry among obstetricians, its performance is unreliable, poorly supervised with little or no follow-up, and poorly documented by obstetricians [15]. Even in the developing countries, where the practice of clinical pelvimetry is still required as guideline, these observations are glaring [2,9]. Some authors are of the opinion that clinical pelvimetry serve only as guidelines and are not accurate measurements [1,3]. Furthermore, clinical pelvimetry does not put into consideration the comparative size and attitude of the baby and the physiological changes in pregnancy following the relaxation of the pelvic joints [1,3,7].

Limitation of this study was the restriction of the study population to the UNTH, Enugu, Nigeria. Primigravidae who received care in other health institutions in the urban areas and those who received no care at all were not included in this study. Furthermore, patients were informed by medical personnel and clinical pelvimetry is routinely carried out in this centre. It is likely that medical personnel discuss in its favour: thus positively motivating patients to pursue it as well. However, this is a stepping stone towards further research on clinical pelvimetry among Nigerian women.

5. CONCLUSION

There is profound awareness and the desire to continue clinical pelvimetry among primigravidae at the UNTH, Enugu, Nigeria, where majority of the women showed strong preference for it.

CONSENT AND ETHICAL APPROVAL

Ethical clearance was obtained from the Ethical Committee of the University of Nigeria, Enugu Campus. (21: 10: 2008). Informed consent was obtained from each primigravida after explaining the objectives of the study.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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