Age at Natural Menopause among Nigerian Women in Zaria, Nigeria

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Abstract: Menopause and the age of its onset are associated with an increased incidence of cardiovascular disease and some cancers. The age at natural menopause and some variables (blood pressure, body mass index, educational level and parity) were investigated by a questionnaire survey of Nigerian women in Zaria. Data was collected from 88 women aged 40-65 years (mean age 53.59±0.65 years) which included their weight (kg), height (m) and blood pressure (mmHg) using standard methods. Data was presented as mean±SEM and frequencies while results were analysed with ANOVA and correlation between variables determined. The mean and median ages at menopause were 46.16±0.37 and 46.0 years, respectively. A significant positive correlation (0.263) was found between menopausal age and parity (p<0.05). On the other hand, a negative relationship was established between menopausal age with diastolic blood pressure (-0.021) and the body mass index (0.041) which was however not significant (p>0.05). An increase in educational attainment was associated with lower age at menopause but was not statistically significant. Earlier onset of natural menopause among Nigerian women in Zaria is strongly associated with parity and inversely associated with body mass index and the diastolic blood pressure. This study provides some insight into the determinants of age at menopause among women in Zaria. We recommend longitudinal studies encompassing other variables.

Key words: Blood pressure, body mass index, educational status, natural menopause, menopausal age, Zaria

INTRODUCTION

With advancing age, a permanent cessation of menstruation (menopause) resulting from loss of ovarian follicular activity occurs. The defining age is between 45 and 55 years (Research on the Menopause, 1981). A woman’s age at the onset of natural menopause is associated with several diseases. An early menopause is associated with an increased risk of osteoporosis and increased overall mortality while a late menopause is associated with an increased risk of breast cancer incidence (Cooper and Sandler, 1998; Kritz-Silverstein, 1993). Associations of disease incidence with menstrual status lead naturally to the idea that the lifetime risks of these diseases vary with age at menopause, which has further increased interest in identifying other factors associated with age at menopause.

The age at menopause differ in different societies. Contemporary industrialized populations demonstrate a later median age at menopause (51.4 years) than populations that are non-industrialized or poorly nourished (48.28 years), (Gold et al., 2001; Noreh et al., 1997). Although the timing of menopause affects long-term disease risk, little is known about factors that affect this timing. With improvement in life expectancy globally, more women in developing countries will live 30% of their lives after menopause. There is a lower incidence of use of contraception among women in Northern Nigeria, parity is higher and nutritional status is also lower. The study was aimed at determining the age at menopause of Nigerian women in Zaria, a semi-urban city, as well as some variables associated with its determinants.

MATERIALS AND METHODS

Study site: The data for the study was collected from women in Zaria (a cosmopolitan town), Kaduna state. Zaria is located in Northern Nigeria, latitude 11°3’ N, longitude 7°42’ E. The altitude of the area is 610 m and the annual rainfall is about 1056.6 mm with a mean annual temperature of 27°C (Mortimore, 1970).

Study population: A cross-sectional study was carried out on eighty- eight (88) postmenopausal women in Zaria. The study was conducted from March, 2009 to October, 2010. Eligible women were identified through multi-stage sampling of the two local government areas constituting the town. Two districts each were selected from which 88 women were found eligible. Selection of the volunteers was based on some inclusion and exclusion criteria. Post menopausal women included in the study group were at
least 1 year amenorrheic due to a natural cause without a hysterectomy or other procedure that would have stopped their menses (Research on the Menopause, 1981). The women were between 40-65 years. Women who were diabetics, hypertensive, who smoke cigarette, drink alcohol or were on medication were excluded from the study. The study was undertaken after obtaining consent from the participants and approval from the Ethical Committee on Human Research of Ahmadu Bello University, Zaria.

Collection of data: A questionnaire was designed incorporating sociodemographic, obstetric, gynecological as well as other relevant history. The questionnaires were self administered from March to September, while the interviews of the women were conducted in English and the local dialect of Hausa (a lingua franca in this region). Using standardized procedures, height (in metres), weight (in kg) and blood pressure (in mmHg) were measured using the stadiometer (Harpenden), platform balance scale, mercury sphygmomanometer (Acosson, A.C. Cossor & Son (surgical) Ltd., London) and stethoscope (3M Littmann Classic II S.E. Stethoscope, U.S.A) respectively. Body Mass Index (BMI) was then calculated as weight/height$^2$ (kg/m$^2$).

Statistical analysis: Results were presented as mean±SEM and frequency distribution, while data was analysed using Student t-test and one way analysis of variance (ANOVA). Correlation coefficient was used to find the relationship between age at natural menopause (dependent) and different independent variables. Results were considered statistically significant with p<0.05.

RESULTS AND DISCUSSION

The mean and median age at menopause for the study population is 46.2 and 46.0 years, respectively (Table 1). These values are lower than those of previous studies undertaken to determine these parameters in various populations in Nigeria. A mean and median age at menopause of 48.4 and 48.0 years was determined for women of Yoruba descent (Okonofua et al., 1990). While a questionnaire survey of women in Abakaliki, southeast Nigeria revealed a mean and median age of 49.4 and 49 years, respectively (Ozumba et al., 2004). It is established that there may be ethnic variations to the menopause experience though some variables (parity, menstrual cycle) which differ in the different ethnic groups are said to be the determinants (Neri et al., 1982). The values for this study were also lower than that in Caucasians; 51.4 years (Gold et al., 2001). Lower values (median age) of 44.0 years was found in an Indian community. An earlier onset of natural menopause is said to be due to racial, geographical and lower socioeconomic status (menopause may be brought forward by low socioeconomic status and malnutrition) in Africans or individuals in developing countries (Lawlor et al., 2003; Reis et al., 1998). The resultant effect will be an increased risk in overall mortality in these women (Cooper and Sandler, 1998).

The age at menopause was lower among highly educated women (tertiary education, 44.11 years) compared with those who were not educated (illiterate, 46.64 years), though not significant (Fig. 1). This finding is consistent with earlier studies which revealed a lower age at menopause in women with higher education (Parazzini and Progetto Menopausa Italia Study Group, 2007). Similar studies on the determinants of age at menopause reveal conflicting findings (Gold et al., 2001; Hidayet et al., 1999). A low educational level (often considered one of the best socioeconomic indicators) was found to be independently associated with a lower age at natural menopause in their studies. Other researches reveal that there was no unequivocal evidence of an association between educational level and age at menopause from a review of 29 studies (Canavez et al., 2009).

The body mass index and diastolic blood pressure of the menopausal women in this study, demonstrated a negative correlation with menopausal age (Table 2). However, these relationships were not statistically significant. On the other hand, and conforming to other studies, parity (Gold et al., 2001; Parazzini and Progetto Menopausa Italia Study Group, 2007) was significantly correlated (positively) with age at natural menopause. Factors related to the lifetime of ovulatory cycles are found to be associated with the age at menopause (Palmer et al.,

<table>
<thead>
<tr>
<th>Educational Status</th>
<th>Mean±SEM (n = 88)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TERTIARY</td>
<td>46.2±0.64</td>
</tr>
<tr>
<td>SECONDARY</td>
<td>46.0±0.65</td>
</tr>
<tr>
<td>PRIMARY</td>
<td>45.8±0.64</td>
</tr>
<tr>
<td>ADULT EDUCATION</td>
<td>46.6±0.65</td>
</tr>
<tr>
<td>NONE</td>
<td>46.4±0.65</td>
</tr>
</tbody>
</table>

Fig. 1: A bar chart of the mean age at menopause according to the educational status.
Table 2: Correlation matrix of age at menopause with some variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Parity</th>
<th>BMI</th>
<th>DBP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menopausal age</td>
<td>0.263**</td>
<td>-0.041</td>
<td>-0.021</td>
</tr>
<tr>
<td>Parity</td>
<td>-</td>
<td>0.025</td>
<td>0.264*</td>
</tr>
<tr>
<td>BMI</td>
<td>-</td>
<td>-</td>
<td>0.085</td>
</tr>
<tr>
<td>DBP</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

BMI: Body Mass Index; DBP: Diastolic Blood Pressure; *: p<0.05; **: p<0.01

2003). Suppression of ovulation by pregnancy or oral contraceptives results in anovulation, a mechanism implicated to be associated with a later age at menopause.

CONCLUSION AND RECOMMENDATION

The findings of the present study indicate that women in Zaria may experience an earlier menopause as compared to both Caucasians and other Nigerian study with parity serving as a significant predictor. They thus are at risk of overall mortality due to early menopause. Since data is self-reported in a retrospective way, shortcomings may be encountered especially in those who had been menopausal for long. We hence recommend a longitudinal multi-centre study to follow up the natural history of the Nigerian menopausal transition. Encourage the establishment of menopause clinics to cater for the needs of the Nigerian menopausal woman.

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REFERENCES


