A study on the Effect Of Early Menopause On Pulse Pressure In 50-55years Of Female

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ABSTRACT
BACKGROUND
Pulse pressure, i.e. the difference between systolic (SBP) and diastolic blood pressure (DBP), is a crude but readily acquired measure of arterial stiffness Early menopause may hasten the increase in arterial stiffening with age, and lead to an increased risk of cardiovascular disease. The objective of this study was to study the association of early age at menopause with pulse pressure (PP) a marker of arterial stiffness. METHODS: One group of 30 female (age 50-55years) (group 1) who attain menopause since 5 year or more and other group of 30 female (age 50-55years) (group 2) who attain menopause since 1years or not attain menopause. Both groups of female not used hormone replacement therapy(HRT) and not had a hysterectomy. Pulse pressure is calculated as difference between systolic and diastolic blood pressure. RESULT: In the early menopausal group, the mean SBP and DBP was 133.3 and 72.80 mm Hg while in late menopausal group, the mean SBP and DBP was 117.0 and 66.80 mm Hg. Pulse pressure in early menopausal group (60.50) was higher than late menopausal group (50.20). CONCLUSION: Pulse pressure, a marker of arterial stiffness, is clearly related to older chronological age. Our study suggests that PP may also be related to older "biological age", if one considers early age at natural menopause as a sign of biological aging study suggests that early age at menopause, related to a small subsequent increase in Pulse Pressure (PP).

KEYWORDS: Pulse pressure, biological age, chronological age, early menopause

INTRODUCTION
Pulse pressure, i.e. the difference between systolic (SBP) and diastolic blood pressure (DBP), is a crude but readily acquired measure of arterial stiffness. Findings from the Framingham study¹ have suggested pulse pressure being superior to SBP and DBP in predicting CHD risk. Increased arterial stiffness has been proposed as a marker or mechanism for initiation or progression of atherosclerosis and / or structural arterial changes due to hypertension.² Menopausal factors, or loss of ovarian function, have been proposed to close the gap of the gender difference in arterial stiffness after age 50. Early menopause may hasten the increase in arterial stiffening with age, and lead to an increased risk of cardiovascular disease. In the current study we hypothesized that early age at menopause is associated with increased arterial stiffness as indicated by pulse pressure and with increasing pulse pressure over time.

The objective of this study was to study the association of early age at menopause with pulse pressure (PP) a marker of arterial stiffness.

MATERIAL AND METHODS
Cross section study is done on one group of 30 female (age 50-55years) (group 1)
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who attain menopause since 5 year or more and other group of 30 female (age 50-55years) (group 2) who attain menopause since 1 years or not attain menopause. Both groups of female not used hormone replacement therapy and not had a hysterectomy. PP was measured by difference between systolic and diastolic blood pressure.

Three sitting blood pressure readings were recorded after 5 minutes of rest using a random zero sphygmomanometer. The systolic and diastolic blood pressure values used in the analysis as outcomes were averages of the second and third readings. History was taken and clinical examination was done for inclusion and exclusion criteria.

Inclusion criteria:
Age group 50 – 55 years (One group who attain menopause since 5 year or more and other group who attain menopause since 1 years or not attain menopause.)
No history of HRT or hysterectomy.
No History of any disorder present that affect the pulse pressure.

Exclusion criteria
History of HRT or hysterectomy.
History of any disorder present that affect the pulse pressure. Pt taking antihypertensive medications.

Experiment Protocol
All subjects filled the consent from that they are willing to participate in the study. History and clinical examination was done for inclusion and exclusion criteria. Systolic and diastolic and pulse pressure was taken. Mean value was measured and unpaired t test was done.

Procedure
Systolic and diastolic blood pressure measured by digital sphygmomanometer with keeping patient in sitting position and keeping the sphygmomanometer at the heart level. Pulse pressure is calculated as difference between systolic and diastolic blood pressure.

Subject was given proper instruction for the procedure. Following values are measured: Systolic blood pressure, Diastolic blood pressure, Pulse pressure.

STATISTICAL METHODS
By unpaired t test and p value less than 0.05 considered as a significant
The Statistical software namely Graphpad prism used for the analysis of the data and Microsoft word and Excel have been used to generate graphs, tables etc.

RESULTS

<table>
<thead>
<tr>
<th>Parameters</th>
<th>early menopausal group</th>
<th>other groupe</th>
<th>significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height (cms)</td>
<td>167.2 N=30</td>
<td>168.0 N=30</td>
<td>ns</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>59.80 N=30</td>
<td>60.30 N=30</td>
<td>ns</td>
</tr>
</tbody>
</table>

As observed from the above table, In the early menopausal group, the mean Height was 167.2 cms. In the late menopausal group, the mean SBP was 168.0 cms. Difference in Height was not statistically significant. In the early menopausal group, the mean Weight was 59.80. In the late menopausal group, the mean Weight was 60.30. Difference in Weight was not statistically significant.

<table>
<thead>
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<th>Parameters</th>
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</tr>
</thead>
<tbody>
<tr>
<td>systolic blood pressure</td>
<td>133.3 N=30</td>
<td>117.0 N=30</td>
<td>S (P &lt; 0.05)</td>
</tr>
<tr>
<td>diastolic blood pressure</td>
<td>72.80 N=30</td>
<td>66.80 N=30</td>
<td>S (P &lt; 0.05)</td>
</tr>
<tr>
<td>pulse pressure</td>
<td>60.50 N=30</td>
<td>50.20 N=30</td>
<td>S (P &lt; 0.05)</td>
</tr>
</tbody>
</table>

As observed from the above table, In the early menopausal group, the mean SBP was 133.3 mm Hg. In the late menopausal group, the mean SBP was 117.0 mm Hg. Difference in systolic blood pressure was statistically significant with p value < 0.05. In the
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early menopausal group, the mean DBP was 72.80 mm Hg. In the late menopausal group, the mean DBP was 66.80 mm Hg. Difference in diastolic blood pressure was statistically significant with p value < 0.05. early age at menopause was statistically significant with a slightly larger increase in PP (60.50) than later menopause (50.20) which has P value less then 0.05.

DISCUSSION

Pulse pressure, a marker of arterial stiffness, is clearly related to older chronological age. Our study suggests that PP may also be related to older "biological age", if one considers early age at natural menopause as a sign of biological aging. Women with whom early menopause occurred experienced a greater increase in PP than women with menopause at later ages. Arterial stiffening, as assessed by pulse pressure, may offer one explanation for the findings of others relating cardiovascular risk to menopause before age 45. 4,5 A change in PP in relation to menopause could reflect the gradual reduction in circulating hormones which occurs at the time of menopause. Earlier studies have shown that estrogen deficiency may induce functional changes in large arteries, but structural changes are more likely to be seen in long-term effects.10 We interpret this postmenopausal PP increase as suggesting that early menopause may be an indicator of a more rapid biological aging process, i.e. that women with an early menopause are generally aging more quickly than expected for their chronological age, as evidenced by the relatively rapid changes in arterial stiffness observed postmenopausal.

Conclusion

Study suggests that early age at menopause, related to a small subsequent increase in PP, but clearly, confirmation of this finding is required like using more sensitive test for arterial stiffness using carotid ultrasound measurements.

REFERENCES


