Mammographic Change in Hysterectomized Women on 0.625 mg/day of Conjugated Equine Estrogen

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Abstract

Objective : To compare the mammographic change before and after conjugated equine estrogen (CEE) 0.625 mg/day in hysterectomized women.

Design : A retrospective descriptive study.

Setting : Menopause clinic, Maharaj Nakorn Chiang Mai Hospital.

Material and Method : Dedicated mammograms and demographic data of 66 women who had been hysterectomized were reviewed. Post surgical menopausal women were recruited for the study. CEE 0.625 mg/day was given just after the operation. The baseline mammography was done before the initiation of HRT and they were compared with the follow-up mammography performed 12-18 months after therapy. The degree of increase in mammographic density was classified as follows: minimal changes (10-25% increased density), moderated change (26-50% increased density), and marked change (> 50% increased density).

Results : The mean age ± SD was 47 ± 4.3 years old. The mean duration ± SD of hormone used was 13.5 ± 2.4 months. The most common indication for operation was myoma uteri (43.9%). On the baseline mammogram, 5 cases had cystic change and one case had a small circumscribed solid mass suspected to be fibroadenoma. On the follow-up mammograms, there were 2 cases (3.0%) detected to have significantly increased breast density. One was moderately increased and the other was markedly increased, but cystic changes and one fibroadenoma were not changed.

Conclusion : CEE has little effect on increased mammographic density.

Key word : Mammographic Change, Hysterectomized Women, Hormone Replacement Therapy

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Mammography is the standard screening test for early detection of breast cancer. It has been shown to reduce breast cancer mortality rate in women over 50 years of age[1]. At present, there are at least 2 large studies showing that hormone replacement therapy may be associated with the increased risk of breast cancer[2,3]. The recent study contained only one regimen of estrogen plus progestin daily[3]. Many studies on mammography found that hormone replacement therapy was significantly associated with the increased density of mammographic picture[4-7]. This finding is correlated with greater difficulty in interpreting the mammogram. So it may be the cause of lower sensitivity of screening mammogram to detect cancer and other abnormalities[8,9].

Unopposed estrogen, especially conjugated equine estrogen (CEE) has been widely prescribed in hysterectomized women for many decades. However, until now there were about 6 published papers on the effect of CEE on mammographic density[5,10-14]. Data suggested that unopposed estrogen has less effect on mammographic breast density than combined estrogen and progestin regimen. Concerning CEE this data was limited because of the small sample size in the previous papers. Moreover, a few studies focused on only CEE, but the remaining analyzed the combination effects of CEE plus other types of estrogen. There were only 2 studies reported by Marugg[11] and Berkowitz[14] that contained only CEE but the number of subjects was 14 and 23, respectively. The results of these studies showed increased breast density of 0 and 8.7 per cent, respectively. This study was undertaken in our hospital with a larger number of subjects (hysterectomized women) receiving only CEE. The authors investigated the effect of hormone on mammographic change.

PATIENTS AND METHOD

The medical records of 66 hysterectomized women attending the menopause clinic at Maharaj Nakorn Chiang Mai Hospital between January 1999 and October 2002 were recruited. All the women in the present study had surgical menopause (defined as women who have undergone bilateral oophorectomy in the normal reproductive period). These patients did not have any history of breast cancer and breast surgery (such as mammoplasty, mastectomy). They received conjugated equine estrogen (CEE) 0.625 mg/day for hormone replacement therapy just after the operation and then continuously based on the patient's need, but for at least 1 year.

Mammography was performed on dedicated mammographic equipment and consisted of craniocaudal and mediolateral oblique views. The radiography obtained before starting hormone or after but within 3 months of initiation and then the second mammogram was performed 12-18 months after treatment. Mammograms before and after hormone replacement therapy (HRT) were compared by one radiologist who had expertise in mammography and was blinded for the previous mammographic reports. The Breast Imaging Reporting and Data System (BI-RADS) categories were used for mammographic assessment[15]. Quantitative density changes of the follow-up mammogram were compared with the baseline mammogram. If there was increasing density of more than 10 per cent, it was considered to be significant change. The severity was classified as;

increased density 10-25 per cent = minimal change
increased density 26-50 per cent = moderate change
increased density > 50 per cent = marked change

Other changes of the mammograms such as cyst, fibroadenoma, calcification etc. were also reported.

Data were analyzed by descriptive statistics.

RESULTS

The mean age ± SD of the patients was 47.0 ± 4.3 years with a range of 34 to 58 years. The mean duration ± SD of hormone used at the period of data collection was 13.5 ± 2.4 months. The baseline mammograms showed cystic change in 5 cases and one small circumscribed solid mass suspected to be fibroadenoma in 1 case. The follow-up mammograms showed density change in only 2 women (3.0%). The first woman was 53 years old, status post total abdominal hysterectomy and bilateral salpingo-oophorectomy (TAH & BSO) due to carcinoma in situ and on CEE for 14 months. The follow-up mammogram was identified to have moderately increased density (Fig. 1). While the second woman was 58 years old, status post TAH & BSO due to myoma uteri and on CEE for 14 months. The follow-up mammogram detected a markedly increased density (Fig. 2). But the cystic changes and a fibroadenoma had not changed.

DISCUSSION

Base on the presented data, the authors found that the use of CEE 0.625 mg/day for HRT in hysterectomized women increased the density of the

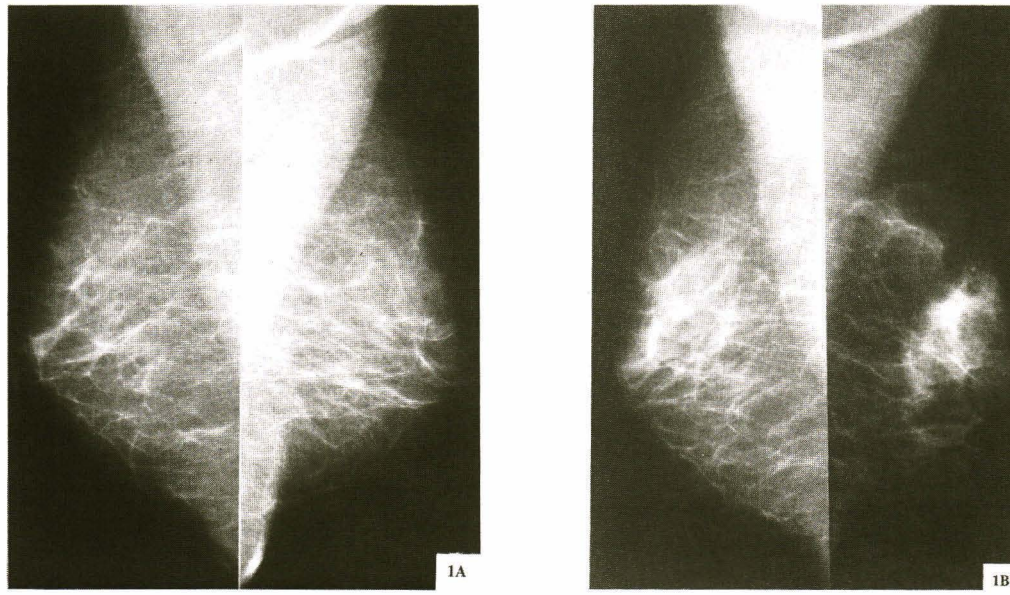

Fig. 1. (A) and (B): Bilateral mediolateral oblique mammograms of a 53-year-old woman before (A) and 14 months after (B) commencement of CEE show moderate increased density.

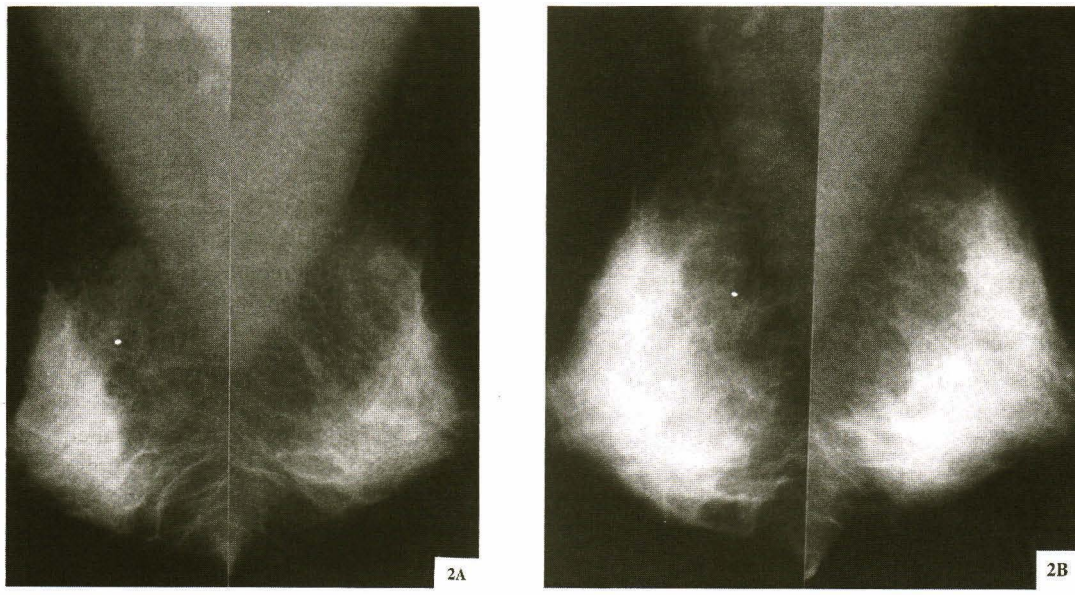

Fig. 2. (A) Bilateral mediolateral oblique mammograms 58-years-old woman before commencing CEE and (B) 14 months following CEE show marked diffuse increase density in both breasts.

mammogram in only 2 out of 66 (3.0%) that is between the rate from the previous reports. Moreover, cystic formation, fibroadenoma that showed on the baseline mammograms had not changed in the follow-up mammograms. Thus, mammographic screening interventions in these women for the early detection of breast cancer will not be affected by the use of CEE 0.625 mg/day. Although, the present study was a retro-

spective study, there was no limitation of interpretation since all mammographic pictures were newly evaluated by only one expert in mammogram. Moreover, the present study contained only one regimen of hormone and had a larger number of subjects than the previous studies.

In conclusion, the present finding supported that CEE has little effect on increasing breast density. So CEE does not decrease the sensitivity of mammogram to detect early breast cancer and other abnormalities. Further study should be undertaken with a larger sample size and a longer duration of follow-up.

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การเปลี่ยนแปลงภาพถ่ายรังสี Mammogram ของผู้ป่วยที่ผ่าตัดเอามดลูกออกและได้รับฮอร์โมนทดแทนชนิด Conjugated Equine Estrogen ในขนาด 0.625 มก/วัน

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วัตถุประสงค์ : เพื่อเปรียบเทียบการเปลี่ยนแปลงภาพถ่ายรังสี Mammogram ของผู้ป่วยที่ตัดมดลูกออกก่อนและหลังจากได้รับฮอร์โมนทดแทนชนิด Conjugated Equine Estrogen (CEE)

รูปแบบการศึกษาการวิจัยเชิงพรรณนาย้อนหลัง (Retrospective descriptive study)

สถานที่ทำการศึกษา : คลินิกวัยทอง โรงพยาบาลมหาราชนครเชียงใหม่

วัสดุและวิธีการศึกษา : ข้อมูลทางการแพทย์ของผู้ป่วยจำนวน 66 คนที่ตัดมดลูก ได้รับการคัดเลือกเพื่อเข้าสู่การศึกษาวิจัยครั้งนี้ โดยผู้ป่วยทั้งหมดได้รับฮอร์โมนทดแทนชนิด Conjugated Equine Estrogen (CEE) ขนาด 0.625 มก/วัน เป็นเวลา 12–18 เดือน ภาพถ่ายรังสี Mammogram ก่อนและหลังให้ฮอร์โมนทดแทนได้รับการเปรียบเทียบโดยผู้เชี่ยวชาญทางด้านภาพถ่ายรังสี Mammogram

ผลการศึกษา : ค่าเฉลี่ยของอายุผู้เข้ารับการศึกษา (Mean ± SD) คือ 47 ± 4.3 ปี ค่าเฉลี่ยของระยะเวลาที่ได้รับฮอร์โมนทดแทน (Mean ± SD) คือ 13.5 ± 2.4 เดือน ข้อบ่งชี้ที่ผู้ป่วยได้รับการผ่าตัดมดลูกออกมากที่สุดคือ Myoma uteri (43.9%) ภาพถ่ายรังสี Mammogram ของผู้ป่วยก่อนได้รับฮอร์โมนทดแทนทั้งหมดพบ cystic change 5 รายและ fibroadenoma 1 ราย หลังจากได้รับฮอร์โมนทดแทนตามระยะเวลาดังกล่าวมี 2 คน (3.0%) ที่พบว่ามีความเข้ม (Breast density) เพิ่มขึ้นอย่างมีนัยสำคัญ โดยที่ 1 คนเพิ่มขึ้นปานกลาง (moderate change) ขณะที่อีก 1 คนเพิ่มขึ้นมาก (marked change) ส่วน cystic change และ fibroadenoma พบว่าไม่มีการเปลี่ยนแปลง

สรุปการศึกษา : การใช้ CEE มีผลต่อการเปลี่ยนแปลงของภาพถ่ายรังสี Mammogramเพียงเล็กน้อย

คำสำคัญ : การเปลี่ยนแปลงภาพรังสีเต้านม, สตรีที่ตัดมดลูก, การให้ฮอร์โมนทดแทน

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