Estrogen use in postmenopausal women: costs, risks, and benefits

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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
Use of conjugated oestrogen.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis and cost-utility analysis.

Study population
Symptomatic post menopausal women with therapy from age 50 to 60, uterus intact or therapy from age 50 to 60, prior hysterectomy. Osteoporotic post menopausal women with therapy from age 50 to 60, uterus intact or therapy from age 50 to 60, prior hysterectomy.

Setting
The study was carried out in the USA.

Dates to which data relate
It seems that price related to 1980.

Source of effectiveness data
Published literature.

Modelling
Epidemiological cohort model (model of survival and disease).

Measure of benefits used in the economic analysis
Life years gained and quality-adjusted life years. 5 descriptive states were used for the health state description. Author values were used to assess the health states.

Direct costs
Direct costs were to the health service and included: drugs, physician visits, tests, and surgery (annual biopsy not included). It seems that price information related to 1980.
Currency
US dollars ($). In the DH Register of Cost-Effectiveness Studies, the original results were converted to UK using GDP purchasing power parities, and reflated to 1991, using the NHS pay and prices index.

Sensitivity analysis
Sensitivity analysis was carried out using the method of single parameter variation.

Estimated benefits used in the economic analysis
Incremental QALYs per woman treated (benefits discounted at 5%) for: symptomatic post menopausal women with uterus were 0.0745 and prior hysterectomy were 0.1000. For osteoporotic post menopausal women with uterus intact were 0.0862 and prior hysterectomy they were 0.1198.

Incremental QALYs per woman treated (benefits not discounted) for: symptomatic post menopausal women with uterus were 0.0918 and prior hysterectomy were 0.1510. For osteoporotic post menopausal women uterus intact they were 0.1716 and prior hysterectomy they were 0.2745.

Outcome duration was life long and treatment side-effects were included.

Synthesis of costs and benefits
Cost duration was life long. Incremental cost per life year gained (costs and benefits discounted at 5%) for symptomatic post menopausal women with uterus: incremental costs were positive, incremental benefits were negative. For the group with prior hysterectomy the ratio was 43,230. Use of conjugated oestrogen in osteoporotic post menopausal women with uterus intact yielded 71,690, and therapy prior to hysterectomy yielded 18930 as incremental cost-effectiveness ratios.

Incremental cost per life-year gained (costs discounted at 5% and benefits not discounted) for the use of conjugated oestrogen in symptomatic post menopausal women with uterus intact yielded positive incremental costs and negative incremental benefits. Therapy with prior hysterectomy yielded 16,460. Use of conjugated oestrogen in osteoporotic post menopausal women with uterus intact yielded 19,020 and therapy prior to hysterectomy yielded 5380 as incremental cost-effectiveness ratios.

Incremental cost per QALY (costs and benefits discounted at 5%) for use of conjugated oestrogen in symptomatic post menopausal women with uterus was 8810, and for the group with prior hysterectomy was 5710; using conjugated oestrogen in osteoporotic post menopausal women with uterus intact the ratio was 6480 and prior to hysterectomy was 3860.

Incremental cost per QALY (costs discounted at 5% and benefits not discounted) for use of conjugated oestrogen in symptomatic post menopausal women with uterus was 7150, and prior hysterectomy was 3790; using conjugated oestrogen in osteoporotic post menopausal women with uterus intact the incremental ratio was 3250 and therapy prior to hysterectomy was 1690.

CRD Commentary
(This commentary was not written by CRD, but by the authors of the DH Register).

1) The length of time that hormone replacement therapy (HRT) protects from fractures after cessation of therapy is unknown.

2) The author assumes a 3-fold reduction during therapy and 2-fold reduction for the next ten years.

3) The quality of medical evidence on which the analysis is based is poor.

4) Charges were used as a proxy for cost.
5) This paper is now dated since the effect of oestrogen in reducing heart disease is omitted (effect uncertain at the time of writing) and endometrial cancer is not considered a risk when oestrogen therapy is given opposed by progesterone.

6) Symptomatic patients were those with either hot flashes or vaginal atrophy

7) Some clinicians consider that relief of menopausal symptoms and long term preventative HRT are different interventions and should not to be confused

8) There were health omissions.

9) The parameters investigated by the sensitivity analysis were not adequately justified.

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