Monitoring of serum squamous cell carcinoma antigen levels in invasive cervical cancer: is it cost-effective?
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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
The health technology studied was the monitoring of serum squamous cell carcinoma antigen (SCC) levels to detect recurrence in invasive cervical cancer, compared with no SCC.

Type of intervention
Diagnosis.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised patients with treated squamous cell carcinoma of the cervix.

Setting
The setting was tertiary care. The study was conducted in Hong Kong.

Dates to which data relate
The effectiveness and resource use data related to 1994 to 1999. The prices used were for 2001.

Source of effectiveness data
The effectiveness data were derived from a single study.

Link between effectiveness and cost data
The effectiveness and cost data were collected retrospectively from the same sample of patients.

Study sample
Power calculations to determine the sample size were not reported. All patients with SCC measurements for squamous cell carcinoma of the cervix treated in one university Department of Obstetrics and Gynaecology between 1994 and 1999 were included in the study sample. The authors did not report whether the study sample was representative of the study population.

Study design
This was a case series study that was conducted at a single centre. The duration of the follow-up was until the onset of clinical symptoms or abnormal physical examination findings.
Analysis of effectiveness
The outcome measures for the study were estimated for those patients that underwent SCC (309 out of 384, 80%). The primary health outcomes used in the analysis were the number of cases detected by SCC monitoring before the onset of clinical symptoms or abnormal physical examination findings, and the number of detected cases with altered clinical management.

Effectiveness results
A total of 55 patients had recurrent disease. Of these, 47 (85%) had recurrent disease with raised SCC levels and 8 had recurrent disease with normal SCC. SCC monitoring predicted recurrence in 39 of these 55 patients (71% of all patients with recurrence). Clinical management was not altered by the prediction of recurrence.

Clinical conclusions
The authors concluded that since SCC monitoring did not alter clinical management, it had no advantage over clinical examination in detecting local recurrence.

Measure of benefits used in the economic analysis
The measure of health benefit used in the economic evaluation was the number of cases of disease recurrence that were predicted by SCC.

Direct costs
The resource quantities and the costs were reported separately. The direct costs to the hospital were included in the analysis. These were for serum SCC level testing, chest radiograph, computed tomography (CT) scan of abdomen and pelvis (with and without iv contrast), CT scan of thorax (with and without iv contrast) and visits to the clinic. The direct cost data were obtained from the standard billing fees for private patients in the hospital. Discounting was not performed. The timeframe for the costs was between SCC initiation and onset of clinical evidence of recurrence, but the length of it was unclear. The study reported the total costs. The price data referred to 2001. The authors excluded the costs of services used after the onset of clinical symptoms, on the basis that these would be similar in patients with and without SCC monitoring.

Statistical analysis of costs
Not reported.

Indirect Costs
The indirect costs were not included since they were not relevant to the perspective of the study.

Currency
The currency was Hong Kong dollars (HK$). The costs were converted to US dollars (US$).

Sensitivity analysis
Not reported.

Estimated benefits used in the economic analysis
A total of 47 patients had recurrent disease with raised SCC. In 39 of these patients, the raised SCC was noted before detection of the recurrence. Eight patients had recurrent disease with normal SCC.
Cost results
The total projected cost was HK$1,445,780 (US$185,360) for all patients, and HK$856,636 (US$109,397) for patients with elevated pre-treatment SCC levels.

Synthesis of costs and benefits
The cost of finding one recurrence was HK$37,070 (US$4,750) for all patients, and HK$27,633 (US$3,529) for patients with elevated pre-treatment SCC levels.

Authors' conclusions
The post-treatment monitoring of serum squamous cell carcinoma antigen (SCC) levels was not cost-effective in the absence of curative treatment for distant spread of disease.

CRD COMMENTARY - Selection of comparators
The authors compared SCC with no SCC to detect recurrence in this study. The comparator was the diagnosis of recurrence from clinical symptoms and physical examination. The authors justified the comparison on the basis that SCC is included in clinical practice with no evidence that it is cost-effective relative to the alternative of no SCC. You should decide if the diagnosis of recurrence from clinical symptoms and physical examination is a widely used technology in your own setting.

Validity of estimate of measure of effectiveness
The effectiveness data were derived from a single study. The analysis used a retrospective case series of patients undergoing SCC monitoring. No control group was included. The number of cases predicted by SCC was measured as the number of recurrences with elevated SCC levels before clinical evidence of recurrence. Groups with and without SCC were not compared in terms of detected cases or clinical treatment. These factors mean that the results of the study could be incorrectly estimated due to bias, observable or unobservable confounding factors. A statistical analysis was not used to control for potential biases and confounding factors. The lack of a control group means that any differences in clinical treatment following detection could not be measured and compared. The authors noted that only 6 patients with recurrence were totally asymptomatic. The study sample was taken from a tertiary care setting. You should decide if this is representative of the study population in your own setting.

Validity of estimate of measure of benefit
A single measure of health benefit was used in the economic analysis. It was obtained directly from the effectiveness analysis. The rationale for this choice of estimate was not reported.

Validity of estimate of costs
All the categories of cost for a hospital perspective were included in the analysis. All the relevant costs for each category of cost appear to have been included in the analysis. The costs and the quantities were reported separately. The resource quantities were taken from a single study. A statistical analysis of the quantities was not reported. The prices were taken from the authors' setting. A statistical analysis of the prices was not reported. The date to which the prices relate was reported.

Other issues
The authors did not make appropriate comparisons of their findings with those from other studies. The issue of generalisability to other settings was not addressed. The authors did not present their results selectively. The study enrolled patients with invasive cervical cancer and this was reflected in the authors' conclusions. The authors reported a number of limitations to their study. First, since there was no control group it was not possible to address the issue of potential improved response or survival to chemotherapy for earlier detection of distant recurrent diseases by SCC monitoring. Second, the issue of quality of life was not addressed. Third, the study was based on current practice and...
more effective treatment for metastatic cervical disease may be available in the future. Highly sensitive imaging
techniques may also be developed for the detection of disease recurrence. The psychological cost of management was
not addressed in this study; further psychosocial studies are needed.

Implications of the study
The authors suggest that the study provided supportive evidence that the pre-treatment SCC level may have a prognostic
role and post-treatment SCC monitoring helps in the early detection of recurrent disease. However, SCC monitoring
does not alter the clinical management of recurrent disease.

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