Evidence Table

Clinical Area: **FDG-PET scan for imaging of patients with a history of cervical cancer.**

Reference: **Havrilesky LJ et al. FDG-PET for management of cervical and ovarian cancer. Gynecol Oncol 2005; 97: 183-191.**

Study Type: Meta-analysis (-*of diagnostic test studies*)

Study Aim: To conduct a meta-analysis of studies on the diagnostic accuracy of FDG-PET compared to conventional imaging for the assessment of the metastatic spread and recurrence of cervical and ovarian cancer. (This evidence tables focuses on cervical cancer).

Outcomes

- *Primary:* Sensitivity, specificity

Design

- *Focused on a discrete clinical question:* Yes.
- *Explicit description of literature search:* Yes. Searched literature through April, 2003.
- *State inclusion and exclusion criteria for studies*: English language; ≥12 human subjects for diagnostic accuracy or impact; addressed study question; reference standard for all participants if evaluated diagnostic accuracy. Excluded studies that used technology still under development.
- *State criteria used to evaluate quality of studies:* Used diagnostic test evaluation criteria (Fryback and Thornbury).
- *Method used to synthesize data (fixed-effects model, random-effects model, both):* Not stated.

Validity

- *Is the study type appropriate for the question(s) being asked?* Yes.
- *Did two or more independent reviewers select studies and extract data*? Yes.
- *Data tested for homogeneity?* Yes.
- *If data were heterogenous, was the analysis method appropriate? (e.g. stratified analysis or random effects model)?* Not known.
- *Did the authors do sensitivity analysis to examine robustness of findings (e.g. by quality of studies)?* No. Instead, did several analyses to address different questions.
- *How did the authors address possible publication bias?* Funnel plot analysis.
- **Conclusions regarding validity of methods:**

Reasonably valid meta-analysis. The statistical models used were not stated.

Results

Included:
- 13 studies on the diagnostic accuracy of PET for assessing patients with newly diagnosed cervical cancer.
  - 4 prospective studies addressed aortic node metastasis, n=12 to 50. All used histology after aortic lymphadenectomy as the gold standard.

- o 4 studies addressed pelvic node metastasis, n=13 to 35. 2 used histology as the gold standard, 2 used clinical follow-up.
- 2 studies on the prognostic significance PET in newly diagnosed cervical cancer. (No pooled analysis).
- 6 retrospective studies on the use of PET for the diagnosis of recurrent cervical cancer. Gold standard was histology or clinical follow-up of at least 6 months in all studies. 3 studies included patients in whom recurrent cancer was suspected clinically. 2 studies included PET performed without clinical suspicion.
- 2 studies on the possible therapeutic impact of PET for patients with cervical cancer.

Pooled analyses of studies on PET for newly diagnosed cervical cancer.

	No. studies	Pooled sensitivity % (95% CI)	Pooled specificity % (95% CI)
Dx of aortic node metastasis	4	0.84 (0.68-0.94)	0.95 (0.89-0.98)
Dx of pelvic node metastasis	4	0.79 (0.65-0.90)	0.99 (0.96-0.99)

Pooled analyses of studies on PET for recurrent cervical cancer.

	No. studies	Pooled sensitivity % (95% CI)	Pooled specificity % (95% CI)
Pts with clinical suspicion of recurrence	3	0.96 (0.87-0.99)	0.81 (0.58-0.94)
Pts without clinical suspicion of recurrence	2	0.92 (0.77-0.98)	0.75 (0.69-0.90)

The authors did not conduct a pooled analysis of the 2 studies on possible therapeutic impact of PET. A brief description of the two studies is as follows:

Lai et al., 2004:
- PET scans were performed on 40 patients with a confirmed recurrent or persistent cervical cancer
- PET results contributed to a change in treatment plan in 22/40 (55%) of patients. In 2/3 of these cases, there was a change from a curative to palliative care plan.
- Surgically managed patients who had PET scans had a better 2-year survival than an historical control group managed without PET (sample sizes not reported).

Belhocine et al. 2002:
- PET scans were performed on 38 patients with a history of cervical cancer.
- PET results contributed to a change in treatment plan in 13/25 (52%) of patients with confirmed recurrences who had an equivocal result by conventional imaging.

Authors' Conclusions

"There is good evidence that PET is useful for the pre-treatment detection of retroperitoneal nodal metastasis in cervical cancer. There is fair evidence that PET is useful for the detection of recurrent cervical cancer…"

Reviewer's Conclusions

Valid meta-analysis techniques were used. However, the studies were all observational, often without comparison groups and sample sizes were small, most included fewer than 40 patients. Studies on detection of recurrent cervical cancer were pooled separately for studies on detection of initial cancer. A meta-analysis of 3 studies in patients with a clinical suspicion of recurrence found a pooled sensitivity of 0.96 (0.87-0.99) and specificity of 0.81 (0.58-0.94). A meta-analysis of 2 studies in patients without a clinical suspicion of recurrence found a sensitivity of 0.92 (0.77-0.98) and specificity of 0.74 (0.69-0.90). There were only two small studies on change in patient management after PET scanning, an insufficient number for a pooled analysis.