

# Could a pelvic and abdominal symptom index assist in early detection of ovarian cancer?

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Findings from a recent study indicate that the novel Goff symptom index is a first step in identifying women at high risk of having ovarian cancer. Further evaluation is required, however, before it is widely promoted.

Not infrequently, women with advanced ovarian cancer present with a constellation of symptoms including bloating, increasing abdominal girth, early satiety, fatigue, changes in bowel or urinary habits, pelvic pressure and pain. The delay in evaluation for ovarian cancer is presumed to be related to the fact that the symptoms are not specific – similar complaints are reported for other diseases.<sup>1</sup>

Goff and colleagues present data from women with an *a priori* increase in awareness of their symptoms (see opposite). The subjects in this study were derived from three groups: women with a diagnosis of a pelvic mass who were undergoing surgery, women presenting for an ultrasound and healthy, high-risk women enrolled in an ovarian cancer

early-detection screening programme. The questionnaires were distributed before surgical exploration, ultrasound, or during the ovarian cancer screening visit. The surveys queried the frequency and duration of 23 symptoms that are reported in ovarian cancer.

Regression modelling was used to develop a symptom index from an exploratory group of 74 women with ovarian cancer and an additional 243 women without cancer. Highly-correlated symptoms were combined into a single variable. The model and index developed from the exploratory group was tested on the confirmatory group to calculate the sensitivity and specificity of the symptom index. When tumours of low malignancy were excluded, the sensitivity of the symptom index to identify

early-stage tumours was 60%. The sensitivity of the index to identify cancers in women <50 years and in women ≥50 years was 83.3% and 72.3%, respectively. The sensitivity of this study to identify early-stage disease within these two age groups was not presented.

The identification of the symptom complex is important, particularly since other molecular and serum diagnostic tests have largely been unsuccessful. The lead time between symptoms and early or advanced ovarian cancer is unknown. In this article, although the symptom index was successful in identifying cancer in subjects who had been experiencing symptoms for less than six months, we are not provided with the stage of those cancers. Screening tools are most useful when cancer is

detected early enough to influence survival, as opposed to early in its symptomatology. The symptom index is not a screening test, but might lead to tailored clinical evaluation. The sensitivity of this symptom index to identify early-stage ovarian cancer is comparable to the historical reports of sensitivity of cancer antigen 125 to identify ovarian cancer overall.<sup>2</sup> The success of these tools can be best measured by comparing the positive predictive values. The study design presented does not permit such a comparison.

Goff and colleagues have provided guidelines to clinicians regarding the symptom complex that should promote an evaluation for ovarian cancer. On the basis of available data, it is unclear whether shortening the time from symptomatology to diagnosis will increase the proportion of cancers diagnosed at an early stage. Appropriate referral, staging and treatment are correlated with improved survival.<sup>3</sup> If clinicians are more aware of the symptoms of ovarian cancer, this could lead to a more direct referral to a clinician with the required expertise

for the diagnosis and treatment of ovarian cancer.

#### References

1. BA Goff et al. (2004) Frequency of symptoms of ovarian cancer in women presenting to primary care clinics. *JAMA* 291:2705–2712
2. RI Olivier et al. (2006) CA125 and transvaginal ultrasound monitoring in high-risk women cannot prevent the diagnosis of advanced ovarian cancer. *Gynecol Oncol* 100:20–26
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## Synopsis

BA Goff, LS Mandel, CW Drescher et al. (2007) **Development of an ovarian cancer symptom index: possibilities of earlier detection.** *Cancer* 109:221–227

**Background.** Ovarian cancer has a poor prognosis and a high mortality rate, primarily because diagnosis is usually made only once the cancer is at an advanced stage. Ovarian cancer screening is not recommended for the general population. Although ovarian cancer was historically believed to be asymptomatic, abdominal, pelvic and urinary symptoms have all recently been characterised in the context of this cancer.

**Objective.** To develop a symptom index for ovarian cancer by comparing symptoms in women at a high risk of developing this cancer with those documented by women awaiting surgery for ovarian cancer.

**Design and intervention.** This was a US and Canadian case-control study of 149 women with ovarian cancer who were scheduled to undergo pelvic mass surgery and 488 women who presented to primary care clinics (233 for an ultrasound and 255 healthy women from the Ovarian Cancer Early Detection Study [OCEDS] considered to be at high risk of ovarian cancer). All participants completed a survey on the severity, frequency and duration of 23 different symptoms. All women were assessed for depression and extent of positive and negative affect. Surveys were conducted between March 2004 and September 2005. Study participants were randomly assigned to either the exploratory group or the confirmatory group. Assignment was randomised except that the exploratory group included 55 women from a previous study who had completed the same symptom questionnaire (depression and negative affectivity data were not available for these participants).

**Outcome measures.** The main outcome measures were the frequency, severity and duration of ovarian cancer symptoms in patients with ovarian cancer compared with symptoms reported by participants without overt disease.

**Results.** None of the women who presented to primary care clinics developed ovarian cancer within 6 months of completing the study. These women were younger than those with ovarian cancer and had significantly fewer symptoms ( $P < 0.001$ ). There was no difference in negative affect between the groups. Depression was more common in women who had ovarian cancer than in those who did not, and was positively correlated with the number and severity of symptoms. In the exploratory group, pelvic or abdominal pain, urinary urgency or frequency, increased abdominal size or bloating, and difficulty eating or early satiety were all markedly associated with ovarian cancer when they had been present for  $< 1$  year and occurred  $> 12$  days per month. A symptom index was considered positive if the patient documented any of these symptoms (with the exception of urinary urgency or frequency) more frequently than 12 days per month, but only if symptoms had started less than a year ago. In the confirmatory group, the index had a specificity of 90% for women aged  $\geq 50$  years and 86.7% for women aged  $< 50$  years. Index sensitivity was 56.7% for early-stage disease and 79.5% for advanced-stage disease.

**Conclusion.** The frequency and duration of pelvic and abdominal symptoms can identify women who potentially have ovarian cancer and in whom further investigation is warranted.

*Acknowledgement:* The synopsis was written by Rosalind Archer, Editorial Assistant, *Nature Clinical Practice*