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Specialist surgery for ovarian cancer in England

John Butler [a,*], Carolynn Gildea [b], Jason Poole [b], David Meechan [b], Andrew Nordin [c,d]

[a] Department of Gynaecological Oncology, Royal Marsden Hospital, London SW3 6JJ, UK
[b] Public Health England Knowledge & Intelligence Team (East Midlands), 5 Old Fulwood Road, Sheffield S10 3TG, UK
[c] East Kent Gynaecological Centre, East Kent Hospitals University NHS Foundation Trust, QEQM Hospital, St Peters Road, Margate, Kent, UK
[d] Gynaecological Site Specific Clinical Reference Group (SSCGR), National Cancer Intelligence Network (NCIN), 5th Floor, Wellington House, 133-155 Waterloo Road, London SE1 8UG, UK

HIGHLIGHTS

- In 1999 national guidance recommended centralisation and specialisation of ovarian cancer surgery.
- Specialist surgery and centralisation for ovarian cancer in England have increased from 2000 to 2009.
- Survival has also increased.

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ABSTRACT

Objective. The aim of this study is to evaluate the impact of the 1999 national recommendations for ovarian cancer surgery in England to be performed by specialist surgeons in specialist centres.

Methods. A retrospective analysis of English cancer registry records, Hospital Episode Statistics (HES) data for all English NHS providers and General Medical Council (GMC) sub-specialty accreditation, to consider changes to the annual proportion of ovarian cancer (ICD10 C56-C57) patients undergoing major gynaecological surgery in gynaecological cancer centres (GCCs) or by specialist gynaecological oncologists (GOs).

Results. From 2000 to 2009, 2428 consultants were responsible for surgery on 30,753 patients. There were significant increases in the proportions of patients undergoing surgery at GCCs (43% to 76%, $P < 0.001$), by GMC accredited GOs (5% to 36%, $P < 0.001$), and by high ovarian cancer caseload (≥18 cases) surgeons (22% to 56%, $P < 0.001$).

Conclusion. There have been increased centralisation and specialisation of surgery for ovarian cancer patients since the NHS Cancer Plan (2000) and there has also been improved survival. However, by 2009, many ovarian cancer patients were still not receiving specialist surgery; the majority of patients were not operated on by GMC accredited gynaecological oncologists and there was considerable regional variation. Systems of accreditation should be reviewed and trusts should ensure that HES data accurately records clinical activity.

1. Introduction

Ovarian cancer is the fifth most common female malignancy and most lethal gynaecological malignancy with approximately 5750 new diagnoses and 3500 deaths each year in England [1]. Ovarian cancer survival in England and the UK has been persistently lower than other comparable countries [2–5] and this appears to be due to differences in treatment rather than adverse stage distribution or late diagnosis [6].

The Calman Hine Report (1995) [7] recommended the centralisation of cancer services and the formation of cancer networks, and these have been formally established since the NHS Cancer Plan [8]. In 1999, the Department of Health published the Improving Outcomes Guidance (IOG) in Gynaecological Cancers recommending that "Surgery for ovarian cancer should be carried out by specialised gynaecological oncologists at Cancer Centres" [9].

1.1. Specialised gynaecological oncologists

It has been estimated that 478 lives a year could be saved if UK ovarian cancer survival matched the best in Europe [10]. After stage at diagnosis, the most important determinant for ovarian cancer survival is the volume of residual disease after staging surgery [11]. In comparison to general gynaecologists and general surgeons, gynaecological oncologists and high volume surgeons are more likely to completely resect all disease, perform a lymphadenectomy and treat patients according to guidelines [12], and have lower in-hospital mortality resulting in improved survival [13,14].

In the United Kingdom, there have been specialist training programmes in gynaecological oncology, accredited by the Royal

* Corresponding author.
E-mail address: John.Butler@cancer.org.uk (J. Butler).

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College of Obstetricians (RCOG), since 1984. This is a two or three year fellowship programme completing a syllabus or specialised training in accredited gynaecology oncology centres [15]. Surgeons completing such approved UK programmes are accredited as gynaecology oncology sub-specialists by the General Medical Council (GMC). Other surgeons having completed training programmes overseas may also be listed as sub-specialists by the GMC. The GMC accreditation is not comprehensive, as many surgeons recognised nationally and internationally as very experienced gynaecological oncologists, and responsible for training and supervising sub-specialist trainees, are not listed as sub-specialists.

The British Gynaecological Cancer Society (BGCS) proposed that a gynaecological oncologist is a surgeon who works in a designated gynaecological cancer centre and spends 75% or more of their clinical sessions in gynaecological oncology. It has also proposed that surgical caseload is a key parameter for benchmarking performance [16]. These proposals have not been formalised and the BGCS does not maintain a register of gynaecological oncology specialists.

Neither is there an international standard of what constitutes an adequate caseload for a gynaecological oncologist. Vernooij et al. defined case volumes as low (≤6 per year), intermediate (7–12 per year) and high (>12 per year) [17]. Bristow et al. defined low as <10 per year and high as ≥10 [18].

1.2. Specialised gynaecological cancer centres

It has been shown that outcomes in many cancers are improved when care is performed in specialised centres [19–22]. Ovarian cancer treated in high volume hospitals has been associated with increased likelihood of cytoreduction, shorter length of stay, and lower hospital-related cost of care [14]. The combination of high volume hospital and high volume surgeon is an independent predictor of improved disease specific survival [18]. Centralisation of care in specialist gynaecological oncology centres enables management by specialist multidisciplinary teams (MDTs) including integration of specialist medical, surgical and clinical oncology, radiology and nurse specialist services. It ensures continuity of care and improves the information provided to patients. Additionally, it advances expertise in specialist radical ovarian cancer surgery by facilitating the development of multidisciplinary surgical teams and joint surgery by sub-specialist gynaecological oncologists.

There is no publically or easily available list of specialist gynaecological cancer centres. The National Cancer Peer Review Programme was able to provide lists of the MDTs who were reviewed as specialist in the review period 2004–2008, and also in the subsequent yearly review periods. However, no lists were available before 2004. Additionally, there were some differences between these lists, with some MDTs removed and some added. Furthermore, not all the MDTs included in these lists were regarded as specialist MDTs at the time of the review, either by peer review or the relevant cancer network.

The purpose of this paper is to examine the extent to which there has been an increase in specialised ovarian cancer surgery since the publication of the IOG and cancer plan.

2. Materials and methods

2.1. Definition of ovarian cancer surgery

Ovarian cancer (ICD10 C56–C57) patients aged 16–99 and diagnosed between January 1999 and December 2009 were identified from the National Cancer Data Repository for England and linked to Hospital Episodes Statistics (HES) [23] admitted patient care data to determine whether the patients received relevant surgery between 2000 and 2009. For each finished consultant episode, HES data includes the unique GMC number for the consultant responsible for the patient's care and details of the hospital provider. Patient postcodes were used to assign the relevant health administrative region (Strategic Health Authority, SHA).

A clinically agreed list of OPCS Classification of Interventions and Procedures (OPCS-4) codes [24,25] were used to identify a range of surgical procedures considered relevant for ovarian cancer [web appendix Table 1]. In order to maximise data capture, particularly for those undergoing surgery after neoadjuvant chemotherapy and with treatment delays, surgery was only considered to be relevant to the cancer if performed up to thirty days prior to or one year after the recorded date of diagnosis. For patients with relevant surgical procedures on more than one occasion, only the first occasion is included in the reported results.

2.2. Specialised gynaecological oncologists

Each consultant's speciality was determined using either the lists of hospital consultants in England and Wales, obtained from the NHS Organisation Data Service [26] or the online GMC register [27]. In a small number of cases it was assumed that the consultants did not have a relevant speciality; specifically where the HES consultant code was incomplete, invalid or unknown or where the consultant could not be found on either list used.

Five alternative definitions of a specialist consultant (gynaecological oncologist) were considered; firstly, those included in a GMC provided list of consultants with a recognised sub-speciality in gynaecological oncology, for surgery performed after their accreditation date. The other definitions were based on consultants whose specialism was listed as Obstetrics and Gynaecology (O&G) and were recorded as responsible for treating a minimum number of new patients in that calendar year. As there is no consistent definition of high and low caseload, consultants operating on 10, 15, or 20 plus patients were used to define high caseload and also 18 as this represented the median caseload of accredited gynaecological oncologists.

2.3. Specialised gynaecological cancer centres

Using the National Cancer Peer Review Programme provided lists of the MDTs reviewed as local and specialist gynaecological teams, two lists of specialist gynaecological trusts were compared. A “2004–08 review period” list of specialist trusts includes the MDTs reviewed as specialist teams in the period 2004–08, where they were also subsequently reviewed as specialist teams or where their cancer network's IOG implementation plan recognised existing speciality with the provision for a transfer of services. A second list of specialist trusts includes the MDTs reviewed as specialist teams in the period 2011/12. There was one exception of an institution reviewed as a specialist team, but excluded since the Peer Review Programme and relevant cancer network consistently have stated that they do not recognise it as an agreed specialist centre.

2.4. Statistical methodology

A Wilcoxon rank-sum test was used to test for a difference, between 2000 and 2009, in the caseload distributions for GMC accredited gynaecological oncology sub-specialists. For each caseload definition of specialist consultant, a two-sample proportion test was used to test for a change in the proportion of specialist consultants between 2000 and 2009. For each specialist definition, a chi-squared test for trend [28] was performed, in order to determine whether there was a statistically significant linear trend, over the 10-year period, in terms of the percentage of patients receiving specialist surgery.

3. Results

A total of 30,753 (47.8%) of 64,293 ovarian cancer patients, diagnosed 1999–2009, received relevant surgery between 2000 and 2009. A total of 2428 consultants were responsible for their surgery including 1289 with an O&G specialism, and 66 with a gynaecological oncology