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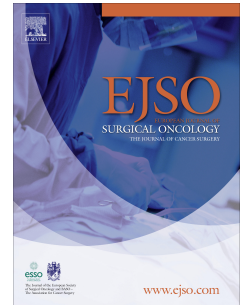
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Improving quality of cancer care through surgical audit

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Abstract

Quality of healthcare is a hot topic and this is especially true for cancer care. New surgical techniques and effective neoadjuvant treatment regimens have significantly improved colorectal cancer outcome. Nevertheless, there seem to be substantial differences in quality of care between European countries, hospitals and doctors. To reduce hospital variation, most initiatives aim on selective referral, encouraging patients to seek care in high-volume hospitals, where cancer care is concentrated to site-specialist multidisciplinary teams. As an alternative to volume-based referral, hospitals and surgeons can also improve their results by learning from their own outcome statistics and those from colleagues treating a similar patient group. European national audit registries in surgical oncology have led to improvements with a greater impact on survival than any of the adjuvant therapies currently under study. Moreover, they offer the possibility to perform research on patient groups that are usually excluded from clinical trials.

Nevertheless, between European countries remain differences in outcome and treatment schedules that cannot be easily explained. The European CanCer Organisation (ECCO) has recognised these importances's and created the 'European Registration of Cancer Care' (EURECCA) framework to develop a European colorectal audit structure. EURECCA will advance future treatment improvements and spread these to all European cancer patients. It provides opportunities to treat elderly and comorbid patients evidence based while it offers an unique insight in social-economical healthcare matters such as the consequences of commercialisation, treatment availability and screening initiatives. As such, ECCO has established the basis for a strong, multidisciplinary audit structure with the commitment to improve cancer care for every European cancer patient.

Introduction

Quality of healthcare is a hot topic and this is especially true for cancer care. Several ranking lists for doctors and hospitals can be found on the internet and in the popular press around the world. Unfortunately, many of those lists do not meet the requirements needed for a fair judgement on healthcare providers and can therefore give misleading results. Nevertheless, the search for quality is plausible since there seem to be substantial differences in quality of care between countries, hospitals and doctors. In Europe, 5 year relative survival for colorectal cancer varies between 32% and 64%¹. In most western health care systems, efforts are made to reduce hospital variation. Most initiatives focus on selective referral, encouraging patients to seek care in high-volume hospitals, where cancer care is concentrated to site-specialist multidisciplinary teams. Such a strategy of treating a larger proportion of patients in specialized centres, can evidently improve outcomes for complex surgical procedures, like esophagectomies and pancreatectomies². Elsewhere in this EJSO supplement, a relationship between hospital or surgical volume and patient outcomes is demonstrated for breast and colorectal cancer. However, the expertise for diagnosis and treatment of common types of cancer should be preferably widespread and easily accessible for all patients. Besides, one must keep in mind that there will always be low volume providers that perform very well as there are high volume providers with unacceptable outcomes. As an alternative to volume-based referral, hospitals and surgeons can also improve their results by learning from their own outcome statistics and those from colleagues treating a similar patient group. Quality assurance in surgical oncology is relative new compared to other medical fields such as chemotherapy and radiotherapy. For a long time, surgery was thought to have too much unexpected variation to be feasible for standardization and quality control. However, the perception of surgery is steadily shifting from being a non definable craftsmanship to a transparent and well defined skill. Training, specialisation, knowledge, teamwork and continuous quality improvement are considered mandatory for surgeons in the 21st century³. Surgical audit is a quality instrument that collects detailed clinical data from different health care providers, which can be adjusted for baseline risk and subsequently fed back to individual hospitals or surgeons. In this way, 'best practices' can be identified, communicated and broadly adopted. After casemix adjustments, a fair judgement can be made on the quality of cancer

treatments. Hospitals and surgeons can be faced with their own results compared to those of colleagues treating the same patient category. Another important advantage is the fact that audit registries include the entire patient population which makes it possible to perform research on patient groups that are usually excluded from clinical trials (e.g. elderly, high comorbidity).

European surgical audits for colorectal cancer

In the last two decades, several surgical audits have been established in Europe. Most audits were initially set up for rectal cancer, because of poor outcome together with a remarkable variation between hospitals and between individual surgeons⁴. In that time, several European studies had shown that improvements in outcome were possible when rectal cancer surgery was refined with the total mesorectal excision (TME) technique⁵⁻⁷. Implementation of this new surgical technique and reduction of the variation in outcome between hospitals and surgeons, were the main reasons to initiate audit registries for the surgical treatment of rectal cancer. Later, most rectal cancer audits were broadened with colon cancer. Between 1993 and 2009, eight surgical (colo)rectal audits were founded in Europe (table 1).

In 1993 the Norwegian Rectal Cancer Project was founded, including more than 99% of patients operated for rectal cancer. After four years the results of this audit were remarkable: the proportion of TME surgery rose from 78 to 92% and the local recurrence rate dropped from 28 to 7%⁸. Moreover, the audit showed to be very cost effective with every saved life being less than €700,-⁹. Currently, the audit's name is changed to The Norwegian Colorectal Cancer Project because colon cancer is also being registered.

The Swedish Rectal Cancer Registry was set up in 1995 and includes over 97% of all Swedish rectal cancer patients¹⁰. Postoperative mortality dropped under 2.5% and the local recurrence rate dropped under 10%. Survival improved dramatically: patients with rectal cancer had an even better 5-year survival rate than those with colon cancer¹¹. This is remarkable because in the same period important improvements in chemotherapy for patients with colonic cancer had been achieved. Rectal cancer

patients did not benefit from these changes as adjuvant treatment after rectal cancer surgery is still considered experimental in many European countries. The fact that survival of rectal cancer patients was superior to those of colon cancer patients shows the considerable impact of structural surgical training and feedback. Nowadays, colon cancer is also part of the audit, which is renamed to The Swedish Colorectal Cancer Registry.

The Danish Colorectal Cancer Database also led to satisfying results. Since 1994, 93% of all colorectal cancer patients were included. After 5 years of auditing, 5-year survival increased from 42% to 63% for women and from 37% to 55% for men¹².

More recently, other European countries followed in the Scandinavian footsteps by setting up their own national (colo)rectal audit programs. In 2001, The Association of Coloproctology of Great Britain and Ireland (ACPGBI) started the National Bowel Cancer Audit Programme (NBOCAP). In 2008, 95% of trusts in England and Wales submitted data. Within 5 years, 30 day mortality dropped from 7% to 4.5%¹³.

In 2000, the 'International Quality Assurance in Colorectal Carcinoma' was initiated in Magdeburg, Germany. Between 2000 and 2008, 372 hospitals from Germany and Poland included 57,429 patients. Since 2009, patients from Naples, Italy are included and Lithuania is scheduled to join 2010. The percentage of abdominoperineal excision was significantly reduced from 26.1% in 2000 to 21.3% in 2008¹⁴.

In 2005, Belgian surgeons initiated the Project on Cancer of the Rectum (PROCARE)¹⁵. After standardisation and implementation of guidelines, prospective registration started in 2006 on a voluntary basis. Until now, 50% of the Belgian hospitals participate and around 2500 patients are included¹⁶. Besides registering crude outcome data after rectal cancer treatment, extensive efforts and resources are used to train surgeons, pathologists and radiologists in the latest standards of rectal cancer treatment.

In 2006 Spanish TME project was founded. This rectal cancer audit registration has a national coverage of 20%. So far, 3100 patients are included. First reports show a 30 day mortality of 3.1% and an anastomotic leakage rate of 8.2%¹⁷.

In 2009, the Dutch society of surgical oncology, the Dutch society of gastrointestinal surgery and the Dutch colorectal cancer group started the Dutch Surgical Colorectal Audit (DSCA). Within a year all hospitals in the Netherlands agreed to take part in the audit and more than 10,000 patients were included in early 2010. Recently, the DSCA published its first annual report covering 2009¹⁸. Obviously, in a first report no statements can be made about the quality enhancing effect of the audit. However, important findings were discovered such as the percentage non-elective colon cancer operations. 21% of all operations were acute or urgent, with a mortality rate up to 14%. Striking is the fact that 26% of the patients that underwent acute or urgent surgery, had visited a surgical outpatient clinic before their situation became urgent. Given the fact that for colon cancer, mortality after elective surgery is only 2.9% compared to 14.3% after acute surgery, it seems obvious that many lives can be saved when these 'unnecessary acute' patients are reduced.

Considering the magnitude of improvements induced by the audit projects described above, the costs are futile in comparison to several adjuvant therapies. Most importantly, the benefit for individual patients of most adjuvant therapies is several orders of magnitude smaller than that of the major improvements achieved by the audits.

European Registration of Cancer Care [EURECCA]: an International, Multidisciplinary, Outcome-based Quality Improvement Project of the European CanCer Organisation.

Although all national audits achieved excellent results, differences remain between European countries that cannot be easily explained. On review of the results, there are differences in mortality, complications, recurrence and survival. Moreover, there are substantial differences in (neo)adjuvant treatment regimens. While in Sweden and the Netherlands most rectal cancer patients receive preoperative radiotherapy, in Norway a minority of patients receive radiotherapy (4% between 1993 and 1997⁹). Nevertheless, local recurrence rates in Norway equal the rates in Sweden and the Netherlands⁸.

Despite the numerous national projects, international initiatives are limited. To generate the best care for colorectal cancer in the whole of Europe and to meet political and public demands for transparency, a deep and broad insight in treatment outcomes is needed union wide. A European audit registration will provide transparency, benchmarking and feedback across nation's borders. This can rapidly lead to treatment improvements and a decrease in variation in the quality of care around the continent.

Urged by these arguments, the European CanCer Organisation (ECCO) initiated an international, multidisciplinary, outcome-based quality improvement program: European Registration of Cancer Care (EURECCA). The goal is to create a multidisciplinary European registration structure for patient, tumour and treatment characteristics linked to outcome registration (morbidity, mortality, loco-regional control, and survival). The registration will be used for benchmarking and internal feedback among participants and enhance further improvements in quality and efficiency of cancer care. All eight audit registries described in this article have given their full commitment to participate in the EURECCA framework.

Considering the multi-disciplinary aspect of cancer treatment, collaboration between the European cancer organizations is pivotal for the success of EURECCA. Key partners in realizing the vision are the European CanCer Organisation, the European Society of Surgical Oncology, the European Society for Therapeutic Radiology and Oncologists, the European Organisation of Research and Treatment of Cancer and the national audit structures.

The EURECCA project has a strong clinical research component complemented by the provision of practical tools for care providers all aiming at the optimization of the delivery of surgery, radiotherapy and chemotherapy in colorectal cancer. Among the main scopes of the research is the definition of the "core quality treatment standards" which, by way of recommendations, will be systematically disseminated in order to optimize current treatment patterns and offer patients the maximum quality treatment locally available with strategies to limit undesirable effects. The main objectives of the project are:

- To perform research on the currently available population-based registries of patients with colorectal cancer in order to identify communalities and differences of surgery, radiotherapy and chemotherapy modalities of treatment in the European regions covered by these registries.
- Research to derive treatment outcomes from population-based registries in order to optimize current treatment approaches by defining “core quality treatment strategies” as well as treatment recommendations.
- To integrate “core treatment quality strategies” in clinical practice data collection, develop validation methods and facilitate outcome monitoring with feedback.
- To optimize the level of knowledge and experience in the treatment of colorectal cancer through professional education and dissemination programs.

Conclusion and future perspectives

National audit registries in surgical oncology have led to improvements with a greater impact on survival than any of the adjuvant therapies currently under study.

Moreover, they offer the possibility to perform research on patient groups that are usually excluded from clinical trials such as elderly. The ECCO has recognised these importances and created the EURECCA framework to develop a European colorectal audit structure. EURECCA will advance future treatment improvements and spread these to every cancer patient in Europe. It provides opportunities to treat elderly and comorbid patients evidence based while it offers an unique insight in social-economical healthcare matters such as the consequences of commercialisation, treatment availability and screening initiatives. Although EURECCA definitely contributes to transparency in healthcare, there is emphatically no intention to create an environment which is dominated by a ‘naming, shaming and blaming culture’.

Therefore, individual surgeon or hospital data will only be accessible for the concerning health care providers, compared with an international case-mix adjusted mean outcome. While to a large extent, the EURECCA framework is still under

construction, first orientations are already made for future intercontinental comparisons.

Momentarily, final preparations are made for pooled analyses on the effects of neoadjuvant radiotherapy on long term outcomes. Simultaneously, datasets are being harmonized to facilitate future analyses with respect to national privacy legislations. Early summarily results will be presented at the ESSO conference 'surgical outcome: can we do better' in September 2010 in Bordeaux. At this conference, a pre-negotiated call of agreement will be signed by all participants. In 2011, a multidisciplinary consensus meeting will be organised in Perugia, Italy. The objective is to present extensive results at the 2013 ECCO-17 conference in Amsterdam. As such, ECCO has established the basis for a strong, multidisciplinary audit structure with the commitment to improve cancer care for every European cancer patient.

All information about EURECCA can be found on the webpage:

www.canceraudit.eu

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	Audit	Since
Norway	Norwegian ColoRectal Cancer Project	1993
Denmark	Danish Colorectal Cancer Database	1994
Sweden	Swedish ColoRectal Cancer Registry	1995
UK	National Bowel Cancer Audit Program	1999
Germany Poland Italy	International Quality Assurance in Colorectal Carcinoma	2000
Belgium	Project on Cancer of the Rectum	2005
Spain	Spanish TME project	2006
Netherlands	Dutch Surgical Colorectal Audit	2009