Lesson of the Week

Survival after treatment of carcinoma of the rectum

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Carcinoma of the rectum and rectosigmoid accounted for 5009 deaths in England and Wales in 1982.¹ Clinicians have been intrigued by the wide variation reported for survival, which in Britain has varied from 68.4%² to 21.9%³ after five years. This discrepancy may be due to the excellence of treatment in special centres, but since the methods of treatment are limited it may reflect differences in the population studied or in the analysis of the results. In 1981, 12 surgeons (six from teaching hospitals, six from district general hospitals) in the north west of England collected data before, during, and after operation for all patients referred to them with carcinoma of the colon or rectum. We have used the results to investigate the above hypothesis.

Subjects, methods, and results

The results reported here are restricted to patients who presented with a palpable rectal carcinoma whose lower edge was no more than 12 cm from the anal verge. Among the data collected was the opinion of the surgeon at the time of operation whether any excision performed was palliative or curative. All the patients were reviewed regularly and their clinical state was known three years after operation.

Of 189 patients (97 men, 92 women) who presented with a palpable rectal carcinoma, 101 had tumours in the mid-rectum and 88 had tumours in the lower rectum (less than 6 cm from the anal verge). In 23 cases (12%) the surgeon did not excise the tumour because of widespread dissemination of the disease. Among the remaining 166 patients undergoing excision the surgeon considered that in 38 patients (23%) the operation had been palliative because of local or distant spread and that in 128 patients (77%) it had been curative. Of the 23 patients who did not undergo excision, one patient who had been treated by local diathermy survived for 25 months. Of the 38 patients who received what the surgeon considered to be a palliative resection, one survived for 36 months.

Of the 128 patients who received what the surgeons believed were curative resections, 7 (5%) died within 30 days of operation. After three years 89 (70%) were still alive but eight were known to have recurrent disease. Eighty one patients (63%) were considered to be free of tumour.

Discussion

These figures may be presented in many ways (tables I and II). If the analysis is restricted to known survival of the patients who initially presented in hospital with a palpable rectal carcinoma, then the crude survival was only 47% at three years. But we know that eight of the survivors had recurrent tumours, and many clinicians prefer to quote tumour free survival, which in this study would be 43%. In this study also, only patients referred to surgeons were

For any given disorder the same data may be used to produce apparently different survival figures; the wide variation in reported survival of patients with carcinoma of the rectum is due mainly to differences in the method of analysis

included. Other studies, such as that of Slaney, included patients known to have carcinoma of the rectum but who were not referred to surgeons.³ We do not know how many such patients were diagnosed in our referral area during the period of study, but in other studies these patients have represented at least one fifth of the total. If we assume that there was a similar incidence of such patients within our area and that all these patients who did not undergo excision would have died within three years of diagnosis, then tumour free survival in this theoretical population would be only 81 out of 227 (36%). This is the worst possible interpretation of the results and was the method chosen by Slaney. The survival curve for those patients considered to have had a curative resection suggests that very few patients were likely to die from tumour recurrence and that the five year survival of our theoretical population would be similar to the 21.9% observed by Slaney.

TABLE I—Prospective analysis at three years (see text for details)

	No (%) of patients
Age corrected survival of survivors of curative resection	99/121 (82)
Age corrected survival after curative resection	99/128 (77)
Crude survival after curative resection	89/128 (70)
Crude tumour free survival after curative resection	81/128 (63)
Crude survival	89/189 (47)
Crude tumour free survival of referred patients	81/189 (43)

TABLE II—Retrospective analysis at three years (see text for details)

	No (%) of patients
Age corrected survival of survivors of curative resection	93/104 (89)
Age corrected survival after curative resection	93/110 (85)
Crude survival after curative resection	84/110 (76)

When comparing treatments many surgeons consider that it is illogical to include patients who did not have curative treatment. The crude survival of the 128 patients who received what was initially considered to be a curative operation was 70%. Many of these patients are elderly and die from causes unrelated to their carcinoma. A well accepted statistical manipulation is to make a

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correction to survival according to the ages of the patients under review. Applying such a correction to these patients gives an age corrected survival of patients undergoing a curative operation of 77% at three years. Seven patients died within 30 days after operation and many surgeons do not include such patients in discussion of long term survival—arguing that early postoperative death precludes long term survival. Excluding these patients from consideration gives an age corrected survival of patients surviving the curative operation of 82% at three years.

From the above it is valid to state that the crude tumour free survival of all the patients entered into this prospective study was 43% and that the age corrected survival of patients surviving a curative operation was 82% at three years. Though this was a prospective study, the data may be analysed retrospectively and justifiably amended. Initially the surgeon performing the operation considered excision to have been curative in 128 patients. When we analysed these operations with the advantage of having the histological report on the excised tissue we concluded that a curative resection was performed in only 110 patients. The crude survival of these patients was 76%, the age corrected survival of those undergoing a curative operation was 85%, and the age corrected survival of patients surviving a curative operation was 89% at three years. It was the latter method of retrospective analysis that was used by Lockhart-Mummery *et al* in obtaining a five year survival rate of 68.4%, which is quoted so frequently in reports.²

Before undertaking this study and its analysis we knew that comparisons of survival were being made on false grounds owing to selection of data. Nevertheless, we were surprised by the extent of the differences that could be induced by different methods of analysis of the same data in a single study. It seems probable that the excellent results reported from some centres and the distressing

evidence from more widely based studies can be explained on this basis.

From the epidemiological viewpoint it is important to consider all patients in computing survival, but which method of analysis should be used to compare treatment? It seems illogical to use a database including all patients suffering from malignant disease when many may be recognised as incurable at the time of presentation, yet selection at this stage will affect apparent survival and may introduce bias. Since many different databases may be used, it is unsound to draw conclusions from any analysis of treatment unless the population studied is closely defined and the fate of any patient excluded is known.

The patients in this study were admitted under the care of the following consultants (members of the North West of England Gastrointestinal Tumour Group): Mr J Bancewicz (Salford), Mr J Duthie (Oldham), Mr B D Hancock (Wythenshawe), Mr E M Hoare (Davyhulme), Professor M Irving (Salford), Mr R D Kingston (Davyhulme), Mr I MacLennan (Manchester), Mr N K Maybury (Wigan), Mr W McN Orr (Manchester), Mr P F Schofield (Manchester), Mr P A Sykes (Davyhulme), and Mr D E F Tweedle (Manchester).

References

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- 2 Lockhart-Mummery HE, Ritchie JK, Hawley PR. The results of surgical treatment for carcinoma of the rectum at St Mark's Hospital from 1948 to 1972. *Br J Surg* 1976;63:673-7.
- 3 Slaney G. Results of treatment of carcinoma of the colon and rectum. In: Irvine W, ed. *Modern trends in surgery* 3. London: Butterworths, 1971:69-89.

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Medicolegal

Is inexperience a defence against negligence?

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How far will the law go in making allowances for a junior doctor's inexperience? "In all cases the courts expect the doctor to show that degree of skill which would be shown by the reasonably competent professional man," say Mason and McCall Smith, in *Law and Medical Ethics*. "This is an objective standard and it is therefore irrelevant whether the doctor has qualified the day before or ten years before the alleged incident of negligence—it will make no difference to the way his conduct is assessed." But Capstick in *Patient Complaints and Litigation* writes: "A general practitioner or a junior hospital doctor is not expected in the ordinary course of his practice to exercise the skills of a specialist, although the situation may be different if he holds himself out as possessing some specialist skill, or if he undertakes treatment which requires more skill than he possesses, unless there is some emergency and specialist help is not available."²

Faced with such apparently conflicting pronouncements, where does the junior doctor stand? The question of the standard of care which the law expects of a junior hospital doctor has now been thoroughly dissected in a Court of Appeal case decided last month and reported in *The Times* law report alarmingly headed "Doctor's inexperience no defence to negligence."³

Arterial catheter twice put into vein

In that case, *Wilsher v Essex Area Health Authority*, which is likely to go on to the House of Lords, the Court of Appeal held by a majority of two to one (the Vice-Chancellor dissenting), according to *The Times* law report, that the law requires of a junior hospital doctor the same standard of care as is expected of his more senior colleagues, and that inexperience cannot be a defence to an action for medical negligence. The health authority's appeal was dismissed. But a careful reading of the facts and the full judgments in the case (which are only summarised in the law report) shows that a clear distinction has been made between a senior house officer, who was found not negligent, and a registrar, who was found negligent, though their mistakes were broadly the same.

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