

Emergency geriatric surgical admissions

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Summary and conclusions

The emergency surgical work load created by patients aged 80 and over in a district hospital was assessed and the results of treatment examined. Over one year 248 patients aged 80 or over were admitted as emergencies, and the overall mortality rate was 21.8%. When terminal disease was excluded mortality rate was 12.5%. These elderly patients had an average length of stay in the acute surgical ward of 14.7 days compared with a mean of 8.4 days for all patients, and all but seven patients were discharged to their original place of referral.

Elderly patients do exacerbate the bed shortage in acute surgical wards because they tend to stay longer than younger patients, but these elderly surgical patients imposed only a small load on the inpatient geriatric services, as 78% were discharged straight to their own homes and a further 17% went home after a period on the surgical convalescent wards.

Introduction

The elderly make up an increasing proportion of the population. Over the past 60 years there has been almost a fourfold increase in the number of people over 75 years and more than a sixfold increase in the number over 85 years, whereas the total population has increased by only one-third. In the Reading catchment area there is a population of 403 000, and 2% of the adult population are over 80 years.

We assessed the emergency surgical work load created by this elderly age group and the results of treatment.

Methods

All patients aged 80 years and over who required emergency surgical admission to the surgical wards of the Reading hospitals (the Royal Berkshire and Battle hospitals) in 1976 were entered in the survey. A retrospective survey of a similar group of patients admitted in 1966 was also undertaken, which enabled some comparisons to be made. The patients were divided into two groups: those who required and received operative treatment, and those treated conservatively. Those who underwent operations were further divided into "emergency" or "urgent" groups. The emergency group comprised patients in whom operative treatment could not be delayed until the next routine operation list.

Results

The total number of surgical admissions increased from 3824 in 1966 to 6559 in 1976. Though the proportion of emergency admissions

fell from 51% (1958) in 1966 to 44% (2941) in 1976, the proportion of emergency operations performed on patients aged 80 and over increased from 6.2% (122) to 8.4% (248). The mean age of patients aged 80 and over who were admitted as emergencies in 1976 was 85.6 years (range 80-98), and, of the 248 patients, 129 were women. There was no change between 1966 and 1976 in the mean age, age range, or sex ratio.

The reasons for acute surgical admission are summarised in table I.

TABLE I—Reasons for emergency admission in 1976

	No of patients		No of patients
Genitourinary	64	"Medical" causes	9
Peritonitis	41	Abdominal pain ? cause ..	7
Intestinal obstruction ..	33	Rectal bleeding	9
Haematemesis and melaena ..	27	Dysphagia complete	5
Peripheral vascular disease ..	21	Jaundice	2
Constipation	11	Miscellaneous	7
Carcinomatosis	11		
		Total	248

Except for an increase in vascular causes there has been little change in the past 10 years. The commonest single cause was acute retention of urine. Of the 49 patients with retention of urine 13 had a successful trial without catheter and 16 (mean age 89 years) had a permanent catheter inserted. Sixteen prostatectomies were performed, with two deaths. The overall mortality for the 49 cases was 14.3%.

The 27 patients admitted with haematemesis or melaena, or both, had an overall mortality of 18.5%. Only four patients underwent surgery.

Apart from the 11 patients with faecal impaction, 33 patients were admitted with intestinal obstruction. Surgery was required in 21 cases, with a mortality of 24%.

Of the 41 patients admitted with signs of localised or generalised peritonitis, 13 had diverticulitis, and three of these patients needed an operation. Six of the 12 patients with cholecystitis needed surgery: three emergency cholecystectomies were performed for gangrene or perforation and three were performed "urgently" for empyema. There were no deaths in this group. Nor were there any deaths among the five patients with appendicitis, all of whom were treated by emergency operation. Pancreatitis accounted for five cases with one death.

Admissions due to peripheral vascular disorders have increased in the last 10 years. Six patients required major amputation and had a mean bed occupancy of 46.2 days; four died. Three embolectomies were performed with two deaths. Seven patients were admitted with pre-gangrene, two of whom required minor amputations. None of these patients died; nor did the three patients admitted with associated cellulitis. One patient had a leaking aortic aneurysm. In only one case was reconstructive surgery possible.

Eleven patients were admitted with carcinomatosis for terminal care. A further six patients were subsequently found to have terminal carcinomatosis although this was not known at the time of admission. In all there were 20 patients with terminal disease.

The overall mortality in this study was 20.6%, with the mean day of death being 13.3 days after admission (table II). The cause of death is shown in table III.

TABLE II—Mortality according to type of treatment

	1966		1976	
	% Mortality	Mean day of death	% Mortality	Mean day of death
Emergency surgery	28.6	8	22.9	8
Urgent surgery	16.7	24	23.4	23
Conservative treatment	6.6	10	13.4	9
Total	14.8	14	21.8	13

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TABLE III—Cause of death according to type of treatment

	Emergency surgery	Urgent surgery	Conservative treatment
Myocardial infarct	1	2	1
Pulmonary embolus	0	1	0
Chest infection	1	5	4
Cardiac failure	1	1	6
"Surgical" sepsis, etc	3	2	6
Carcinomatosis	1	5	11

Many of the patients had co-existing disease and were receiving other medication. Sixty-four had congestive cardiac failure or ischaemic heart disease, 28 had chronic bronchitis, and 12 had diabetes mellitus. Twenty-six per cent of the patients were receiving treatment for cardiac problems, whereas 50% of the patients who died were on such treatment.

The average length of stay in the acute surgical ward was 14.7 days (8.7 days for the "conservative" group and 21.3 days for the "operative" group). All but seven patients were discharged to their original place of referral, although 27 patients had a period (mean 25 days) at our convalescent hospitals before being discharged home.

Discussion

Twenty-five years ago in the report of Bosch *et al*¹ on the effect of age on major surgery, the over 60s were considered aged. Fifteen years ago similar reports^{2,3} considered over 70 years to be old. Hanlon⁴ predicted that 75 or indeed 80 years would become the dividing line beyond which patients are considered aged.

In spite of there being no change in the total number of people aged 80 or over in the local population of Reading, the number of these patients admitted as emergencies has doubled in the past 10 years. This may, in part, reflect a change in attitude by the referring general practitioner.

Although there was no correlation between age and mortality in the series, these admissions accounted for a quarter of all the deaths on the surgical wards in 1976.

Carp⁵ stated that the mortality rate is 2 to 2½ times higher in patients aged over 60 than in younger patients. Stahlgren² showed that mortality rate for all age groups is two to three times greater for emergency surgery than for elective surgery. Bonus and Dorsey⁶ showed a mortality rate of 24% for emergency surgery in patients aged over 75 years, which was four times that in patients undergoing elective operations. Blake and Lynn⁷ described an overall mortality rate of 31.7% in emergency abdominal operations in 375 patients aged over 75 years.

In our series the overall mortality rate was 20.6% (20% for those undergoing emergency operations, 25% for those undergoing urgent operations, and 18.8% for those treated conservatively). When patients with terminal disease were excluded mortality fell to 12.5%.

Gilchrist and de Peyster⁸ and Mithoefer and Mithoefer⁹ concluded that neither age nor concurrent cardiorespiratory disorders had any influence on mortality rate, whereas Cole¹⁰ considered that peripheral vascular disease and cardiorespiratory

disorders were a major factor in the mortality of geriatric patients. Twenty-three of the 51 deaths in our series were due to cardiorespiratory complications, and 17 of these deaths occurred in patients who were being treated for cardiorespiratory disorders before admission.

The mortality rate in the emergency operation group was less than that in the urgent group. There were no operative deaths, and only three patients died within 48 hours of operation. It has been our experience that early operative intervention is indicated, and the criteria for not undertaking operative treatment should not be based on age.

As chronological age is an unreliable yardstick, biological age is a valuable concept but is difficult to measure. The most important fact in determining whether aggressive treatment should be undertaken is the patient's general condition and life style before admission. These points should be carefully elicited in the history from the patient, relatives, and the referring practitioner, so that an early decision can be made on the management of the patient. No half-measures should be undertaken, and, indeed, we have been impressed by the use of elective ventilation in the intensive care unit in the immediate postoperative period, especially in the "septic" patient.

In our survey only two patients refused operation; both were admitted with heavy rectal bleeding due to carcinoma of the rectum.

Transient confusion occurred quite often, particularly after operation, when it was usually associated with the common complication of chest infection. In two patients transient confusion heralded the onset of septicaemic shock.

Bed shortage is a common problem on acute surgical wards. With nearly one in 10 of the patients admitted to these wards being aged over 80 years this problem is exacerbated. The mean stay in our acute surgical wards for all patients is 8.4 days compared with 14.7 days for patients aged 80 years or more.

Of the patients who were living at home before admission, 78% of those discharged went straight home and a further 17% went home after convalescence. The load imposed on the inpatient geriatric services was therefore small.

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Is TAB vaccination still considered desirable or worthwhile and, if so, on what grounds. (I understand there is currently an outbreak of typhoid in the Cape Province, where TAB vaccination is widely practised and advocated by the health authorities.)

The question as to the efficacy of TAB vaccination is very difficult. In the 1964 Aberdeen outbreak,^{1,2} the worth or otherwise of the vaccine was not raised, although the effect of vaccination or disease on the serological response in healthy persons or patients was analysed. It is extremely difficult to perform a good prospective study of the effect of vaccination on enteric fever, especially in the more underdeveloped countries, where the disease is prevalent. Often at the same

time as vaccination is introduced standards of hygiene and sanitation are improved, and any reduction in the incidence of infection may be ascribed to the vaccine.³ In my experience in Britain it is rare for a case of typhoid to present in a patient who has a firm history of recent and adequate TAB vaccination. I recommend that two doses of TAB be given 4-6 weeks apart to persons travelling to a place where they will be at risk. A reinforcing dose should then be given every three years when necessary.

¹ Brodie, J, *Journal of Hygiene*, 1977, **79**, 161.

² *British Medical Journal*, 1978, **1**, 389.

³ Christie, A B, *Infectious Diseases*, 2nd edn, p 120. Edinburgh: Churchill Livingstone, 1974.