Vascular surgery within general surgery: an analysis of workload 1989–2005

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ABSTRACT

INTRODUCTION There is considerable debate as to whether vascular surgery should be a subspecialty separate from general surgery. This study examines the changing relationship between general and vascular surgery in a district general surgical unit over 16 years.

PATIENTS AND METHODS A detailed survey of referrals, admissions and operations to one unit was carried out over 3 months in 2003. This was compared with similar surveys in 1989, 1990 and 1995. In addition a 3-month audit of operations performed was carried out in 2005 following a decision by the Primary Care Trust (PCT) to reduce varicose vein referrals.

RESULTS There was a significant increase in the number of varicose vein and arterial referrals 1989–2003 ($P = 0.0001$ and $P < 0.0001$, respectively). This was reflected in increased number of vascular admissions ($P < 0.0001$). In 1989, 14% of the arterial cases were admitted as emergencies. This figure rose to 52% in 2003 ($P < 0.0001$). There was a significant increase in the number of arterial operations performed between 1989 and 1995; however, from 1995 to 2003 this number fell ($P < 0.0001$). The number of varicose vein procedures increased significantly 1989–2003 ($P < 0.0001$), with a significant fall after the PCT decision ($P < 0.0001$). However, the number of operations carried out in 2005 increased slightly with the proportion of general surgical cases, mostly hernia repairs and laparoscopic cholecystectomies, increasing.

CONCLUSIONS With increasing specialisation comes the risk that reduction in any aspect of a particular specialty may result in that unit becoming unsustainable. In vascular surgery this will inevitably lead to centralisation of services. In a large district general hospital having two general surgeons with a vascular interest, the general surgical component has maintained the workload of the unit following reduction in varicose vein referrals.

KEYWORDS

Vascular surgery – Audit – General surgery

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Debate continues as to whether vascular surgery in the UK should be a speciality in its own right.^{1,2} Of European countries, Austria, Denmark, Finland, France, Greece, Italy and Luxembourg all have vascular surgery as a specialty separate from general surgery. On the other hand, the UK, Ireland, Belgium and Germany still have general and vascular surgery combined.⁵ Protagonists of a monospecialty cite emergency vascular rotas and the concept of disease-specific ‘surgeons’ as being major determinants of the next generation of vascular surgeons. On the other hand, concerns regarding recruitment into vascular surgery and the impact of withdrawing vascular surgeons from a general surgical rota may be cogent arguments in favour of general and vascular surgery remaining combined, at least in some hospitals.

However, the workload of a general surgeon with a vascular interest is changing. We found significant increases in the

proportion of patients with vascular disease both being seen and being dealt with in a single unit over a 6-year period.⁴ If this continues then separation of vascular from general surgery will be inevitable and will take place by evolution rather than revolution. However, the trend may be reversed by such factors as healthcare rationing, for example the decision by the local Primary Care Trust (PCT) to restrict varicose vein referrals and operations.

The aims of this study were to examine the relationship between general and vascular surgery over a 16-year period in one unit and to document the impact of restricting varicose vein referrals on operative workload.

Patients and Methods

The Royal Berkshire Hospital currently serves a population of about 500,000, an increase of 50,000 since the first audit.

There were five general surgical consultants at the start of the study and 10 by the end of it. A second general surgeon with a vascular interest was appointed in February 1996.

The major changes in terms of emergency admissions to general surgery were that from December 1994 patients with retention of urine and haematuria were admitted to urologists.

Detailed 3-month audits were carried out in 1989, 1990 and 1995.^{4,5} These documented out-patient referrals, admissions (including day-cases and in-hospital referrals) and operations performed. Data were collected for the same 3-month periods for each year. In 2003, the audit was repeated and compared with results of the previous audits. Finally, a 3-month audit of operations performed was carried out in 2005 following a decision by the PCT to limit the number of varicose vein procedures to be undertaken.

Statistical analysis

This was carried out using a χ^2 test; $P < 0.05$ was regarded as being statistically significant.

Results

The overall results are summarised in Table 1.

New out-patient referrals

Since 1989 there has been a significant increase in the number and proportion of patients with a vascular diagnosis (χ^2 118.7; df 6; $P < 0.0001$). During the same time there was a significant increase in both arterial (χ^2 44.23; df 3; $P < 0.0001$) and varicose vein referrals (χ^2 20.61; df 3; $P = 0.0001$). Total number of referrals in 2003 were similar to 1995 with a similar proportion being vascular (χ^2 1.337; df 1; $P = 0.25$ [not significant]). The commonest reason for arterial referral throughout the study was intermittent claudication.

Admissions

There was an increased number of admissions during 1989–2003 with an increasing proportion being vascular (χ^2 161.9; df 6; $P < 0.0001$). This trend, identified in the early years of the study has continued during 1995–2003 (χ^2 7.699; df 1; $P = 0.0055$).

There has been an increase in the proportion of arterial cases admitted as an emergency. In 1989, this comprised 14% of the total rising to 52% in 2003 (χ^2 45.77; df 3; $P < 0.0001$).

Comparing 1989 with 2003, the proportion of patients admitted for endovascular procedures fell from 34 of 73 to

Table 1 Numbers of new out-patient referrals, admissions and operations for 3-month periods in 1989, 1990, 1995 and 2003. Also includes 3-month operation survey in 2005

	1989	1990	1995	2003	2005
New out-patient referrals					
Varicose veins	67	100	156	176	–
Arterial	56	70	167	169	–
General	156	106	105	93	–
Total	279	276	428	438	–
Admissions					
Varicose veins	20	15	80	146	–
Arterial – elective	60	90	75	47	–
Arterial – emergency	13	30	10	50	–
General – elective	76	60	50	68	–
General – emergency	131	170	110	87	–
Total	300	365	325	398	–
Number of operations performed					
Varicose veins	21	14	79	147	19
Arterial	50	79	71	31	75
General	157	118	93	84	175
Total	228	211	243	262	269

24 of 97 (χ^2 8.833; df 1; $P = 0.003$) some 21 angioplasties and three stents being carried out.

Operations

There has been a slight increase in the number of operations carried out throughout the period of the study. From 1989 there has been a significant increase in the number of varicose vein operations carried out (χ^2 155.8; df 3; $P < 0.0001$). Between 1995 and 2003, the proportion of the varicose vein operations rose from 33% to 56% (χ^2 28.39; df 1; $P < 0.0001$). During 1989–1995 there was a significant increase in the number of arterial operations being undertaken (χ^2 12.72; df 2; $P = 0.0017$). By contrast there was a significant fall in the number of arterial procedures undertaken during the 3 months in 2003 compared with 1995 (χ^2 23.64; df 1; $P < 0.0001$).

The fall in the number of varicose vein operations in 2005 was balanced by an increase in the number of general surgical procedures being undertaken (χ^2 148.9; df 2; $P < 0.0001$; 2003 versus 2005). There was no overall reduction in the total number of operations carried out. There was no significant difference in the proportions of operations performed comparing 1989 with 2005 (χ^2 2.712; df 2; $P = 0.2577$).

Discussion

This paper emphasises that the proportion of workload which is vascular on a general surgical unit with a vascular interest was increasing until the PCT cut back on varicose vein referrals and operations. This pattern is likely to be similar in many such units in district general hospitals (DGH).

Despite an increase in the number of arterial referrals and admissions (the latter including in-hospital referrals from other departments) there was a significant fall in the number of arterial procedures performed during 1995–2003. This trend is mirrored across the region.⁶ In 1997–1998, 32.3 reconstructions per 100,000 population were being performed. This fell to 27.2 per 100,000 population in 1999–2000. Similarly, the decrease in the proportion of patients admitted for endovascular procedure fell during 1989–2003. Again, regional figures provide a similar picture showing a trend for reduced numbers of these procedures in recent years.⁶

Organising the management of vascular emergencies remains problematic. No DGH can accommodate its own internal vascular rota. 'Hub-and-spoke' arrangements, collaboration between neighbouring units and development of large central units are all under consideration and each may be appropriate in certain geographical areas.

The proportion of patients presenting with arterial emergencies has increased throughout the time of the study and has been noted elsewhere.⁷ The commonest indication for emergency operations being embolectomy and ruptured AAA and, for urgent operation, bypass procedures and amputations. Failure to implement a management protocol for those patients who present when a 'non-vascular' consultant is on-call will inevitably result in loss of life and limb.

Waiting list initiatives were introduced in November 1991. These initially targeted patients who had been on the waiting list for 2 years and subsequently for more than 18 months. A large proportion of these patients had varicose veins.⁸ This resulted in a significant increase in the number of referral of patients with varicose veins and operations upon them. However, from August 2005 the local Primary Care Trust was only prepared to fund operations for varicose veins in the presence of ulcers or haemorrhage. Phlebitis, discomfort or swelling would be considered providing that a trial of conservative treatment had failed. This will undoubtedly have an impact on workload and will distort the trend which had been developing. Without the general surgical component and the fact that space left by varicose veins can be filled with general surgical cases, the workload for the unit would be very light and probably unsustainable. Ultimately, this is likely to lead to centralisation of vascular service in one form or another.

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