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Survey of spinal therapeutic procedures in the United Kingdom

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Abstract The type and frequency of spinal therapeutic work being undertaken in the United Kingdom (UK) by clinicians with an interest in the surgical treatment of disorders of the spine (primary and secondary subspecialty interest) were evaluated by means of a postal questionnaire. The willingness of respondents to take part in postgraduate spinal training was determined along with issues regarding accessibility of spinal services to non-specialist physicians in the health service in the UK. The re-

sults of 450 respondents provided insight into the types of procedures taking place, for example: primary spinal decompression was regularly carried out by 76% of surgeons, while at least 20% of respondents regularly carried out 66% of the procedures surveyed. We found that 10% of surgeons indicated that they were prepared to participate actively in postgraduate spinal surgical training.

Key words Spine · Surgery · Survey

Introduction

Diverse changes in the structure of the health service in the United Kingdom (UK) have brought with them rationalisation of services as well as an increased trend towards subspecialisation in several medical and surgical disciplines. The move towards subspecialisation in spinal care has also been related to several factors including:

1. Changing concepts in the treatment of chronic back pain and spinal disorders, for example the multidisciplinary team approach
2. Medical innovations for example minimally invasive therapies [1, 3, 6–8, 10]
3. Public expectations and increased litigation
4. Cost effectiveness [5]

Elsewhere in Europe there has also been a trend towards specialisation, partly related to the aforementioned factors, which has paralleled an increase in the number of orthopaedic surgeons. A specialist in this context is a physician or surgeon who devotes at least 70% of his or her time to the subspecialty [4].

It has been well recognised that effective communication, comparative analysis and continuing education across countries relies upon accessible data on what type of work is being carried out in each country and by whom [4, 9].

We therefore sought to determine the type and frequency of spinal procedures carried out by doctors with either a primary or secondary interest in the treatment of spinal disorders in the UK.

Materials and methods

Postal questionnaires were sent to UK members of the European Spine Society and doctors with a declared interest in the treatment of spinal disorders. The purpose was to determine:

1. The type and frequency of spinal therapeutic work being performed in the UK
2. The willingness of respondents to participate in spinal training (possibly reflecting the degree of expertise in a given area of spinal care)
3. A consensus opinion about accessibility of spinal services to the patients of primary-care physicians or non-spine-specialist doctors. In the UK access to spinal services is dependent upon factors such as geography, availability of local spinal expertise, local health care service philosophy/finances, and the referral

Table 1 Spinal therapies surveyed ($n = 15$)

Back school
Chemonucleolysis
Epidural injection
Facet blocks
Instrumentation: pedicular screws
Laser discectomy
Laminectomy
Microdiscectomy
Nucleotomy
Percutaneous discectomy
Root blocks
Spinal deformity surgery
Spinal fusion
Anterior
Posterior
Posterolateral

Table 2 Possible responses to each of the surveyed procedures

A	I perform this procedure (i.e. this is undertaken regularly in any given year)
B	I would like to/expect to do this procedure in the future
C	This procedure should be offered at district level (local level)
D	This procedure should be offered at regional level (supra-district level)
E	I could offer training in this procedure to trainees

pattern of the primary-care physician, who may choose to refer a patient with a spinal disorder initially to a general orthopaedic surgeon instead of to a spinal specialist.

Fifteen spinal therapies were surveyed (Table 1). The questionnaire invited the respondents to indicate which of five possible non-exclusive "responses" applied for each of the spinal therapies surveyed (Table 2). Indicating response A implied that the respondent could confidently carry out this procedure. Responses C and D indicated the respondents' view on the appropriate level of accessibility of these procedures in the health service to primary-care physicians or general orthopaedic surgeons who wished to refer a patient for spinal treatment to a specialist. Responses B and E concerned training; response B gave information about the future "uptake" of these procedures, presumably after the doctor has gained appropriate training. Indicating response E reflected a willingness to offer training in a particular area of spinal care and in turn indicated a level of expertise in that field.

Results

Respondents

Of the 450 respondents (66% response rate) 82% were consultants in orthopaedics and 13% were senior non-consultant-grade surgeons in orthopaedics (senior residents or equivalent grade); the remainder were neurosurgeons (1.7%), radiologists (2%), rheumatologists (1%), and orthopaedic physicians (0.3%) (Table 3).

Table 3 Distribution of practice amongst the 450 respondents

Speciality	Number (percentage)
Orthopaedic surgeons (consultants)	369 (82%)
Orthopaedic surgeons (non-consultants)	58 (13%)
Non-orthopaedic physicians	23 (5%)

Responses

Response A: "I perform this procedure" (Fig. 1)

Seventy-six percent ($n = 342$) of respondents indicated that they regularly carried out laminectomy/decompression, compared to a figure of 41% for epidurals 31% for facet blocks, 34% and 40% for posterior and posterolateral fusion respectively, 23% for anterior fusion, 26% for microdiscectomy 20% for chemonucleolysis and 23% for pedicular screw fixation. Procedures performed less frequently were automated nucleotomy (6%), laser surgery (1.3%), percutaneous discectomy (9%) and spinal deformity correction 10%.

Response B: "I would like to/expect to do this procedure in the future" (Fig. 1)

The highest response rates to this question were for percutaneous discectomy (20%), microdiscectomy (16%) and pedicular screws (13%). However, figures for automated nucleotomy (4%), laser surgery (9%), anterior fusion (9%) and root injections (6%) were low. Figure 1 provides an interesting comparison between the respondents' present practice and their future intentions regarding undertaking other procedures.

Fig. 1

Fig. 2

Responses C "This procedure should be offered at district level" and D "This procedure should be offered at regional level" (Fig. 2)

The question of the appropriate level of accessibility/availability of spinal resource in the health structure was addressed. An average of 28% of respondents indicated that a district/local general hospital service should be available for the majority of the procedures surveyed. An equivalent percentage felt that nucleotomy, chemonucleolysis and pedicular screw fixation should be offered at both district/local and regional (supra-district) levels. The majority of respondents, 78%, indicated that spinal deformity surgery should be offered at a regional level. Figure 2 illustrates the comparison between the responses C and D for each procedure surveyed.

Response E "I could offer training in this procedure to trainees" (Fig. 3)

As far as the capacity to train "would-be spinal surgeons" was concerned, a low response rate was universal in all categories of procedure surveyed, with a mean of approximately 10%.

Fig. 3

Discussion

The number of spinal surgical procedures carried out in the UK have increased annually since 1990 [11], with lumbar disc excision, manipulations, lumbar decompressions and cervical decompressions being the most frequently performed procedures in 1993–94 according to data from the UK Office of Population Censuses and Surveys (Table 4).

In the UK spinal surgical services are not provided exclusively by orthopaedic surgeons; other interested practitioners include neurosurgeons, radiologists, rehabilitation/chronic-pain physicians and physiotherapists, although the nature of the service provided by each member within this multidisciplinary group will vary tremendously. Geographic factors play an important part in determining whether surgical intervention is provided by a neurosurgeon, an orthopaedic surgeon or both [11]. This often reflects the availability of local orthopaedic spinal expertise. Although the survey had an orthopaedic bias amongst the respondents, it nevertheless showed in relative terms the distribution of procedures carried out. It also provides an insight into the future trend in "uptake" of spinal therapies based on the responses "I could offer training in this procedure" and "I would like to/expect to do this procedure in the future".

The results show that a wide variety of spinal procedures were regularly carried out in the UK, with at least 20% of respondents indicating that they were able to perform 66% of the procedures surveyed. Furthermore 10% expected to carry out a new procedure other than those they already perform; this could reflect either a willingness to undertake other procedures (after appropriate training) or a reluctance to change practice due to satisfaction with the outcome of their patients. It could also reflect the respondent's view as to the relevance of a particular procedure in spinal surgical care.

A mean of 10% of respondents indicated that they were prepared to act as "would-be trainers" in a given area of spinal care (Fig. 3), which to some extent reflects the degree of expertise in that field.

Table 4 Spinal operations in England 1993 [11]

	Primary	Revision
Cervical decompression	725	20
Thoracic decompression	245	–
Lumbar decompression	3,179	239
Cervical disc excision	2,058	37
Thoracic disc excision	314	13
Lumbar disc excision	8,812	473
Cervical fusion	310	–
Non-cervical fusion	1,192	117
Manipulation/epidurals	4,727	–
Spinal deformity (instrumented)	867	–

Table 5 Spinal surgeons as a percentage of total orthopaedic surgeons: a comparison across Europe

Country	Percentage
Austria	3
Belgium	10
France	9
Greece	4
Italy	5
Netherlands	1
Spain	3
United Kingdom	11

Table 6 Number of spinal surgeons per 100,000 population across European countries

Country	Number of spinal surgeons
Austria	2.5
Belgium	6
Denmark	5
France	2.34
Germany	3.2
Greece	10
Netherlands	2.5
Ireland	1.6
Italy	7
Norway	5
Portugal	5.4
Spain	5.3
Sweden	10
Switzerland	6
United Kingdom	1.99

In the wider European context the 10% figure of "would-be-trainers" is comparable to the percentage of surgeons in the UK who regard themselves as having a spinal subspecialty interest (Table 5). The comparative data initially suggest that there is an above-average percentage of spinal surgeons in the UK. This, however, is misleading. Per head of population the figure for the UK is much lower (1.99 specialist is per 100,000 population) than in Belgium, Germany, Italy and Sweden (Table 6). Furthermore, in the UK a number of orthopaedic surgeons without a primary interest in disorders of the spine, albeit with a secondary interest carry out spinal procedures, partly in response to the low spinal surgeon-to-patient population ratio and long hospital waiting lists [2]. One should also bear in mind, when looking at comparative data (Tables 5, 6) that the varying degree of subspecialisation between countries reflects many factors including government restrictions, economy, public expectation and, not least, the orthopaedic tradition of those countries.

Conclusion

These findings illustrate the type of spinal work taking place in the UK. They provide insight into the future trend in spinal service care as far as the "uptake" of minimally invasive and other therapies are concerned. They also provide insight into the ability and willingness of respondents to participate in spinal training, possibly reflecting the degree of expertise in that field.

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