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Incidence of knee arthroscopy in patients over 60 years of age in Scotland☆

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ABSTRACT

Arthroscopy has been utilised in the management of knee osteoarthritis for over 70 years but in recent years there has been growing debate about the efficacy of such treatment. We reviewed data from a national register, the Scottish Arthroplasty Project. We analysed 8897 knee arthroscopies performed in patients aged over 60 in Scotland between 1997 and 2006. Marked regional differences were noted for the rate of arthroscopy, with an upper rate of 230 arthroscopies per 100,000 age corrected population and a low of 80 per 100,000. No apparent reasons could be identified for this disparity. Regions with the highest rate of arthroscopy also had the highest rate of conversion to knee arthroplasty within 2 years, indicating a high level of ineffective and inappropriate arthroscopic surgery being performed in many areas of Scotland.

Introduction

Although arthroscopy has been used therapeutically in osteoarthritis for over seventy years, the evidence for its utility is lacking. The sole level one trial investigating its use[1] found that there was no benefit above placebo at any point up to two years postoperatively. It is likely, however, that there is a small subset of patients with knee osteoarthritis who may obtain lasting benefit from arthroscopy and recommendations have been made to allow identification of these patients preoperatively. Such patients tend to be younger,[8] have mechanical symptoms[9] and short duration of symptoms,[10] with preserved joint space[11] and no mechanical axis malalignment[12] (Table 3). Patients not matching these criteria are unlikely to obtain lasting benefit from the procedure. If these recommendations were being followed nationally, then there should be little variation in the rate of arthroscopy in the over 60 age group across the various regions of Scotland and, moreover, there should be a uniformly low rate of progression to arthroplasty.

The Scottish Arthroplasty Project (SAP)[2] is a national register which was set up in 1999 under the auspices of the Scottish Committee for Orthopaedics and Trauma (SCOT). It was set up in order improve quality of care in arthroplasty by improving feedback to surgeons by use of accurate data and by providing analysis of national trends in arthroplasty. It records the incidence of arthroplasty and its complications in Scotland. The register acquires data by the submission of SMR 01 (Scottish Morbidity Record) forms by the trusts within three

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Table 1 – Rates of arthroscopy and subsequent arthroplasty.

	Annual arthroscopies	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
1997/98	915	27	96	143	172	201	223	243	267	290
1998/99	1126		41	110	162	207	238	261	291	330
1999/00	992			31	102	159	187	211	240	266
2000/01	938				23	99	146	172	196	223
2001/02	889					23	92	128	151	185
2002/03	877						12	78	123	157
2003/04	952							29	115	163
2004/05	1042								30	123
2005/06	1166									40

months of patient admission. Each event is specific to an admission under a named consultant, although the data are submitted anonymised. Data include dates of admission and discharge, diagnosis, side affected and treatment received. Completeness of reporting approaches 100% across the National Health Service in Scotland, but the private sector largely does not contribute to the data set. Two percent of patients' case notes are audited annually to ensure accuracy of coding data. Included in the data are details of other surgical procedures and diagnoses, including arthroscopy. It was therefore possible to ascertain the rate of arthroscopy in the over 60 age group by region across Scotland and subsequently identify which patients, who had undergone arthroscopy, proceeded to knee replacement. The figures were corrected for regional variances in population by cross-referencing with national census data.

This study therefore documents the rate of knee arthroscopy in patients over 60 years of age in Scotland and also the timing of any subsequent arthroplasty.

Materials and methods

The SAP register was analysed to identify patients over 60 who had undergone arthroscopic knee surgery between 1997 and 2006. This included diagnostic arthroscopy, arthroscopic menisectomy and arthroscopic debridement. Each patient could then be identified elsewhere in the register via their unique identifier number, and this was used to ascertain whether they had undergone knee arthroplasty, either unicompartmental or total, in the following years up to the year ending March 31st 2006. The data were analysed for Scotland as whole and by region. Those regions which had both a very small population and performed less than 10 knee arthroplasty operations per annum were discounted.

Results

8897 knee arthroscopies were performed in patients aged over 60 in Scotland between 1997 and 2006, with between 877 and 1166 procedures carried out annually (Table 1). Overall 1777 patients who had undergone arthroscopy proceeded to knee replacement during the study period of which only 46 were unicompartmental and 1729 were total knee replacements. Of these, 1123 underwent arthroplasty within two years of index surgery.

The rates of conversion to knee arthroplasty are summarised at Table 2, and demonstrate that over 15% of patients over 60 years of age undergoing arthroscopy proceed to knee arthroplasty within 2 years. The annual incidence of progression to arthroplasty then slows, but continues to progress to 31.69% at 8 years (Fig. 1).

Marked regional differences were noted for both incidence of arthroscopy and subsequent arthroplasty in the 60–69 age group, with an upper rate of 230 arthroscopies per 100,000 age corrected population, a low of 80 per 100,000 and a national average of 130 per 100,000. (Fig. 2). There was a relationship between volume of arthroscopy and rate of subsequent arthroplasty between regions, with those performing the most arthroscopies having the highest rate of patients going on to arthroplasty within two years. There was no similar correlation between regional rates of knee arthroscopy and arthroplasty in general (Figs. 3 and 4).

Table 2 – Percentage progression to arthroplasty.

	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
1997/98	2.95	10.49	15.62	18.79	21.96	24.37	26.55	29.18	31.69
1998/99		3.64	9.76	14.38	18.38	21.13	23.17	25.84	29.3
1999/00			3.12	10.28	16.02	18.85	21.27	24.19	26.81
2000/01				2.45	10.55	15.56	18.34	20.89	23.77
2001/02					2.59	10.35	14.4	16.98	20.81
2002/03						1.37	8.89	14.03	17.9
2003/04							3.05	12.08	17.12
2004/05								2.88	11.8
2005/06									3.43