

# Treatment of Medial Compartment Arthritis of the Knee

## A Survey of the American Association of Hip and Knee Surgeons

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**Abstract:** Medial compartmental arthritis of the knee is a common orthopedic problem. This study surveyed active members of the American Association of Hip and Knee Surgeons on recommended surgical treatment of this condition. A response rate of 30.8% was obtained. One third of respondents (32.9%) reported patient age as the most important factor in determining surgical treatment. Total knee arthroplasty (89.2%) and arthroscopy (87.2%) were the most widely reported surgical treatments. Most respondents (73.7%) rated experience as the primary basis in determining factors for surgical recommendations. Case scenarios revealed age and gender having significant bearing on treatment recommendations. These results suggest that age and degree of deformity are 2 important considerations in surgical treatment of medial compartment arthritis and, among this group of respondents, influence the wide variety of treatment options. **Key words:** total knee arthroplasty, unicompartmental arthroplasty, osteotomy, medial compartment arthritis, arthroscopy.

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Treatment of medial compartment arthritis of the knee has received a significant amount of attention in recent years. Younger and more active patients are presenting to orthopedic surgeons requesting for treatment of arthritis. In 1999, 31.5% of total

knee arthroplasties were performed for patients with age less than 65 years [1].

Proximal tibial osteotomy has become the mainstay of treatment of medial compartment arthritis in the young and active patient [2,3]. Older patients have often been treated with total knee arthroplasty.

Minimally invasive unicompartmental arthroplasty, popularized by Romanowski and Repicci [4], seems to have gained support. Scott, Thornhill, and others have written extensively on unicompartmental arthroplasty over the past 2 decades [5-7].

The present study describes current opinions and practice patterns regarding treatment of medial compartment arthritis by a group of orthopedic surgeons who perform high volumes of knee replacement surgery. We believed this survey would provide useful information to the general orthopedic surgeon as well as the surgeon specializing in

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Submitted May 31, 2004; accepted January 4, 2006.

These survey results were presented in part at the American Association of Hip and Knee Surgeons' 12th Annual meeting, November 3, 2002 in Dallas, Texas.

No benefits or funds were received in support of the study.

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0883-5403/06/1906-0004\$32.00/0

doi:10.1016/j.arth.2006.01.003

the care of patients with knee arthritis. It is important to know the treatment recommendations of peers who routinely treat patients with these problems.

## Methods

The research design for this study was a 2-staged single-mode (fax) self-administered descriptive survey questionnaire. The survey research methodology of Dillman [8] was applied in the survey and questionnaire design. Official sponsorship from the American Association of Hip and Knee Surgeons (AAHKS) was obtained for the survey.

Members of AAHKS, a unique group of orthopedic surgeons dedicated to the treatment of the hip and knee and who perform a minimum of 50 total hip arthroplasty and total knee arthroplasty operations per year, were surveyed concerning the treatment of medial compartment arthritis of the knee. The questionnaire was developed with input from the AAHKS Research Committee and a review of the literature. The major elements of the questionnaire related to treatment options for patients with medial compartment arthritis of the knee. The questions related to items such as factors determining type of surgical treatment and the surgeon's basis for determining these factors. The survey data were analyzed in SPSS (SPSS Inc, Chicago, Ill) [9].

## Results

All 695 active members of AAHKS were surveyed, with a response rate of 30.8% ( $n = 214$ ). Based on the power analyses of Dillman [8], the response rate established a 95% confidence level of  $\pm 10\%$  for the survey results; a minimum of 85 respondents were needed to achieve this confidence level.

### Surgeon Demographics

The surgeons' practice setting was that of orthopedic private practice in 70.8% (148 of 209), a full-time academic practice in 23% (48 of 209), and a multispecialty clinic in 5.75% (12 of 209). Of 209 surgeons, 89 (42.6%) had been in practice for 11 to 20 years, and 40 (19.1%) had been in practice for 2 to 10 years. The mean years of experience for respondents was 18.6 years (range, 2-40 years) (Table 1).

Of 209 respondents, 157 (75.1%) performed between 51 and 200 total knee arthroplasties in

**Table 1. Demographics of the Survey Respondents ( $n = 214$ )**

Characteristic	Frequency (%)
No. of years in practice	
2-10	40 (19.1)
11-20	89 (42.6)
21-30	64 (30.6)
31-40	16 (7.7)
Type of practice setting	
Private practice	148 (70.8)
Academic practice	48 (23.0)
Multispecialty clinic	12 (5.8)
Government/Military	0
Health maintenance organization	1 (0.5)
Total knee arthroplasty volume (2001)	
<10	4 (1.9)
10-50	20 (9.6)
51-100	78 (37.3)
101-200	79 (37.8)
>200	28 (13.4)

2001, and 28 (13.4%) performed greater than 200 primary total knee arthroplasties in the same year.

All 10 geographic regions, according to Health Care Financing Administration [10], were represented. Region 5 (Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin) was most highly represented at 19.1% (39 of 209), whereas the region with the lowest response was that of region 9 (Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming) representing 2.9% of respondents (6 of 209).

There are numerous surgical treatment options for medial compartment arthritis. Respondents were given an option to mark as many surgical treatment options they use in their routine practice. Of the respondents, 89.2% used total knee arthroplasty and 87.2% used arthroscopy with debridement or chondroplasty as a part of treatment of medial compartment disease. In addition, 71% of the respondents used unicompartmental arthroplasty in their surgical armamentarium. Respectively, 79.2% and 37.7% of respondents used lateral closing osteotomy of the proximal tibia or medial opening osteotomy of the proximal tibia for treatment of medial compartment disease (Fig. 1).

Tibial osteotomy and unicompartmental arthroplasty procedures were studied more in depth because they were less frequently performed. A total of 21.1% of the respondents had done no tibial osteotomies during the past 3 years, and 80.4% had done less than 5 per year for the preceding 3 years. Surgeons (36%) performing osteotomy included arthroscopy at the time of osteotomy, frequently or occasionally. Of these surgeons performing arthroscopy at the time of osteotomy, chondroplasty (41.2%), microfracture

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