CORRESPONDENCE

OBESITY AND HIP OSTEOARTHRITIS

To the Editor:

We read with interest the editorial by Gelber that appeared in the February issue of *The American Journal of Medicine* (1). The author presents a good overview of the effects and known risk factors of osteoarthritis, discussing the influence of obesity on hip osteoarthritis. We would like to add to this by reporting a finding from our recent review of the topic (2).

We found a discrepancy between the studies that assessed osteoarthritis of the hip based on clinical findings only (e.g., hip pain) and those with assessments based on radiological parameters (e.g., Kellgren-Lawrence [3], Croft [4]). Although the former group shows that obese patients suffer more from hip osteoarthritis, the latter shows no such association. Thus, obese patients may have more hip complaints at the same radiological stage of hip osteoarthritis than do nonobese patients, and therefore qualify earlier for a total hip replacement.

In the yet unpublished Rotterdam study, a prospective cohort of men and women aged 55 years or over, we assessed the associations between body mass index and hip pain (for patients with radiological defined hip osteoarthritis, Kellgren-Lawrence $\geq$grade 2), and between radiological hip osteoarthritis and hip pain (stratified by body mass index), in a subset of 3585 participants who had radiographs at baseline and follow-up. The associations were adjusted for sex and age.

In patients with hip osteoarthritis (Kellgren-Lawrence $\geq$grade 2 in at least one hip), body mass index was associated with hip pain (odds ratio [OR] = 2.0; 95% confidence interval [CI]: 1.0 to 3.9). A stronger association was found between osteoarthritis and hip pain for body mass index $\geq$27.4 kg/m^2 (OR = 4.1; 95% CI: 2.6 to 6.9), compared with body mass index $\leq$24.6 kg/m^2 (OR = 2.8; 95% CI: 1.6 to 4.9).

These data support the suggestion that persons who are obese are likely to suffer more at the same radiological degree of hip osteoarthritis than are nonobese persons. Diet may solve a part of this problem; however, studies are needed to support this suggestion.

Annet M. Lievense, MD
Max Reijman, MSc
Huibert A. P. Pols, MD, PhD
Sita M. A. Bierma-Zeinstra, PhD
Erasmus Medical Center
Rotterdam, The Netherlands

1. Gelber AC. Obesity and hip osteoarthritis: the weight of the evidence is increasing. *Am J Med.* 2003;114:158–159.
2. Lievense AM, Bierma-Zeinstra SMA, Verhagen AP, van Baar ME, Verhaar JAN, Koes BW. Influence of obesity on the development of osteoarthritis of the hip: a systematic review. *Rheumatology.* 2002;41:1155–1162.
3. Kellgren JH, Lawrence JS. Radiological assessment of osteo-arthrosis. *Ann Rheum Dis.* 1957;16:494–502.
4. Croft P, Cooper C, Wickham C, Coggon D. Defining osteoarthritis of the hip for epidemiologic studies. *Am J Epidemiol.* 1990;132:514–522.

The Reply:

Lievense et al directly address ongoing efforts at defining the relation between body weight and hip osteoarthritis. Epidemiologic studies examining this topic have over the years been inconsistent. However, there is increasing evidence that higher levels of body mass index contribute adversely to the development of hip osteoarthritis (1–4). In case-control (1,3) and cohort (4) studies, obesity represents a risk factor for radiographically defined hip osteoarthritis. Of note, in a nationally representative survey from the United States, obesity was associated with bilateral, but not unilateral, hip osteoarthritis (2). In these studies, however, the outcome of osteoarthritis was defined on the basis of radiographic features, using well-established criteria.

Lievense et al introduce the dimension of symptoms, specifically joint pain, above and beyond mere radiographic evidence of osteoarthritis. This is an important consideration. The authors suggest that at the same radiological stage of osteoarthritis, obese patients may have more hip complaints. Thus, obesity may be related to arthritic symptoms, beyond its putative causative link to radiographic features of osteoarthritis. This premise is further supported by the observation of a J-shaped curve relating body mass index to health-related quality of life, a relation that is partially explained by joint pain (5).

To support their claim, Lievense et al report data from the Rotterdam study. Their findings emphasize several elements of the relation of body weight to hip osteoarthritis. First, for a given level of body mass index, radiographic evidence of osteoarthritis was associated with a greater frequency of hip pain (odds ratios of 2.8 [nonobese patients] vs. 4.1 [obese patients]). Second, among participants with radiographic evidence of hip osteoarthritis, those who were obese had a twofold greater risk of hip pain. What would be intriguing to know is whether these obese subjects had more advanced grades of osteoarthritis (i.e., Kellgren-Lawrence grades 3 and 4) than did nonobese subjects, and whether they were more likely to have bilateral hip disease. Such considerations may help to explain the findings of Lievense et al, which add to the weight of the evidence that obesity is related to hip osteoarthritis.

Allan C. Gelber, MD, MPH
Johns Hopkins University
School of Medicine
Baltimore, Maryland

1. Vingard E. Overweight predisposes to coxarthrosis. Body-mass index studied in 239 males with hip arthroplasty. *Acta Orthop Scand.* 1991;62:106–109.
2. Tepper S, Hochberg MC. Factors associated with hip osteoarthritis: data from the First National Health and Nutrition Examination Survey (NHANES-I). *Am J Epidemiol.* 1993;137:1081–1088.

© 2003 by Excerpta Medica Inc.
All rights reserved.