The Epidemiology of Osteoarthritis in the Peripheral Joints

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Introduction

The papers and abstracts in this supplement were presented at a workshop, under the patronage of the EULAR Standing Committee of Epidemiology, on the epidemiology of osteoarthritis in the peripheral joints. This workshop brought together 50 researchers active in the field from Europe and North America to review key areas of past, current, and appropriate future research in this field. The areas covered included methods for disease definition appropriate for epidemiological studies, consideration of the descriptive epidemiology of peripheral joint osteoarthritis (both in European and non-European populations), analysis of risk factors including genetic factors, constitutional factors such as obesity, and

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hormonal and reproductive factors, and finally environmental influences, the main one being occupational and leisure time activities. The outcome of osteoarthritis and its predictors was also considered in a separate session. These themes were introduced by plenary lectures and an invited discussant then evaluated the material presented, together with newer data from the proffered abstracts. There is clearly a large number of groups currently active in the field and the workshop came to highlight both areas of agreement and possibilities for future research.

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ALAN SILMAN

SESSION 1: DISEASE DEFINITION

Definition of hip osteoarthritis for epidemiological studies

Michael C Nevitt

The use of clear standardised criteria for defining hip osteoarthritis is important in epidemiological research so that differences among studies in disease frequency and risk factors may add to our understanding of the disease rather than sowing confusion. Despite the limited sensitivity of plain radiographs in detecting early pathological changes in cartilage^{1,2} and bone,³ the better imaging of bone abnormalities compared to cartilage loss,⁴ and concerns about cost and radiation exposure, standard radiographs have many advantages and remain the most important source of information for classification of hip osteoarthritis in community and population based epidemiological studies. Radiographs are practical in most study settings, they provide a permanent and objective record, and the imaging technique and classification procedures can be standardised and reproduced.⁴ While there clearly is not a one to one correspondence, radiographic abnormalities are strongly related to joint pathology,⁵ symptoms⁶⁻⁸ and clinical outcome.⁹ Other imaging methods that show promise in hip osteoarthritis, such as magnetic resonance imaging (MRI),¹⁰ remain experimental. Clinical findings may have a limited role in defining osteoarthritis for epidemiological studies,¹¹ but have not been well studied for the hip.

Kellgren-Lawrence grading

For nearly 40 years, epidemiological research on osteoarthritis has relied on standard criteria for case definition based on radiographic

features assessed according to the atlas based Kellgren-Lawrence (K/L) grading system.¹² The K/L grading system promotes a uniform set of criteria for all joints, and there have been several attempts to resolve apparent inconsistencies in the K/L criteria for different joints (table).^{13,14} However, limitations of the K/L grading system for the hip have long been apparent. Discrepancies between the original atlas photos and legends,¹⁵ which place greater emphasis on joint space narrowing and subchondral bone changes, and later revisions which emphasised osteophytes¹⁴ have created confusion.¹³ Emphasis on osteophytes as the initial defining feature of disease, and the implicit assumption of an invariant developmental sequence of bone and cartilage changes, were questioned early on by those who suggested that hip osteophytes without other changes are part of normal aging^{16,17} and more recently for failing to accommodate atrophic variants with little or no marginal bone reaction.¹⁸⁻²⁰ The small number of K/L atlas examples do not adequately illustrate thresholds (for example, possible versus definite osteophytes) or variations in the appearance of radiographic features. Evidence of high interobserver variability^{14,21-23} combined with the above mentioned inconsistencies in the criteria make it unlikely that the grades have actually been applied consistently so that discrepancies in hip osteoarthritis prevalence across studies^{24,25} are difficult to interpret.

The K/L grading scheme is also discordant with the emerging idea that osteoarthritis