Matters Arising

Birth weight, osteoarthritis of the hand, and cardiovascular disease in men

Haara et al reported recently that the presence of osteoarthritis (OA) in at least one hand joint significantly predicted cardiovascular mortality in a sample of 1560 Finnish men aged 30 or over.1 OA was ascertained radiographically and classified using Kellgren's staging system. The association between hand OA and cardiovascular mortality was independent of age, education, history of workload, and body mass index.

We have investigated the prevalence of hand OA in a British national cohort of 1467 men and 1519 women and looked at associations between hand OA and measurements of weight and height from birth to adulthood.2 The MRC National Survey of Health and Development is a prospective cohort study that has followed up a large sample of people born in England, Scotland, and Wales during a single week in 1946, with most recent data collection at age 53 years. Clinical hand OA was defined using previously validated clinical criteria and included the identification of Heberden's nodes, Bouchard's nodes, or squaring at the carpometacarpal joint. The prevalence of OA in at least one hand joint was 19% in men and 30% in women. We found that hand OA was significantly associated with higher weight at age 26, 43, and 53 years and, furthermore, it was related to lower weight at birth (table 1). These associations were seen in men but not women.

These findings provide the first evidence that lower birth weight may be associated with the development of adult hand OA. The underlying mechanisms is not known but may reflect programming, a phenomenon whereby environmental influences acting at critical periods during early development have long term effects on structure and function of different systems.3 4 The relation between adult coronary heart disease and poor growth in utero is well established.5 6 Furthermore, recent studies suggest added components of risk attributable to childhood weight gain and adult BMI.7 8 We suggest that the relation between hand OA and cardiovascular mortality demonstrated by Haara and colleagues may be explained by both diseases sharing a common origin in adverse early environmental conditions.

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References


Author’s reply

In a prospective cohort study Sayer et al found that lower birth weight was associated with the development of adult hand OA in men. As the authors mentioned, the relation between adult coronary heart disease and poor growth in utero is well established. Based on these facts they suggest that the relation between hand OA and cardiovascular mortality in men may be explained by both diseases sharing a common origin in adverse early environmental conditions. In my opinion these interesting assumptions make sense, the results were well presented, and the the study setting was well established. It would be interesting to study these relationships also in our cohort, but unfortunately, we have no birth weight and related factors of early childhood in our database. However, the association between hand OA and cardiovascular diseases needs further studies to clarify this point.

The limitation in their study was the clinical diagnosis of hand OA. Hand radiography has been proved to be the best method for defining hand OA. Therefore, I suggest that the authors should consider further how clinical diagnosis might have affected the results.

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Table 1: Association between birth weight and clinical hand osteoarthritis (OA) in men aged 53 years

<table>
<thead>
<tr>
<th>Birth weight (kg)</th>
<th>Number</th>
<th>With OA</th>
<th>Without OA</th>
<th>Hazard ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;3.1</td>
<td>82</td>
<td>269</td>
<td>1.7 (1.2 to 2.5)</td>
<td></td>
</tr>
<tr>
<td>3.1–3.5</td>
<td>85</td>
<td>325</td>
<td>1.0 (1.0 to 2.2)</td>
<td></td>
</tr>
<tr>
<td>3.6–3.8</td>
<td>58</td>
<td>290</td>
<td>1.1 (0.8 to 1.7)</td>
<td></td>
</tr>
<tr>
<td>&gt;3.8</td>
<td>53</td>
<td>300</td>
<td>1.0</td>
<td></td>
</tr>
</tbody>
</table>

p Value for trend = 0.002.
section choose a clinical symptom-oriented approach such as localised pain in the arms and legs or joint swelling. While these first two sections focus on musculoskeletal imaging rather than rheumatology alone, the third and largest section covers imaging of the different rheumatic conditions.

Most chapters are comprehensive and up to date such as those covering the modes of imaging. The MRI chapter outlines the outstanding ability of this modality to image joints as a whole organ including the soft tissues, bone, and cartilage as well as including functional parameters such as contrast media uptake. The growing importance of this imaging tool in rheumatology is emphasised in most chapters.

Imaging examples are generally well chosen and the image quality is good. There are seven pages of coloured illustrations in the middle of the book which would have been better placed adjacent to their respective texts. Each chapter stands by itself and, therefore, it is possible to focus directly on the matter of interest. However, as a consequence it is impossible to avoid overlaps between the different topics of the book. This is a minor inconvenience when the book is read as a whole. On the other hand, it allows each chapter to be comprehensive, which is an advantage when chapters are read individually.

Most chapters are well referenced and take recent publications into account. Chapters differ in length, references, and illustrations, indicating that each author has been left the freedom to organise the individual chapter. For example, 19 pages are devoted to the chapter on imaging of antiphospholipid antibody syndrome, whereas only 14 pages cover imaging of the negative spondyloarthropathies. The excellent chapter on the mostly rare heritable disorders of the skeleton adds to the complete coverage of the topic.

Mention should have been made of some of the interventional techniques radiology can offer the clinician such as fluoroscopic or CT guided periradicular infiltration, facet joint block or vertebroplasty for osteoporotic vertebral fractures. The challenging new applications of multidetector CT scanning were not covered in any of the chapters.

It is perplexing why the topic of bone mineral density is found in the chapters of nuclear medicine and peripheral joint swelling. The chapters on systemic lupus erythematosus, systemic sclerosis, vasculitides, and antiphospholipid antibody syndrome also comprehensively cover the non-skeletal manifestations and their imaging.

Despite these few critical remarks the authors and editors are to be commended for producing this first edition. We recommend this book especially to the rheumatologist seeking a broad understanding of the radiological manifestations of the rheumatic diseases. It goes well beyond the coverage of only the rheumatic diseases and also provides insight into musculoskeletal imaging as a whole. The radiologist will find important information not included in standard radiology publications, such as epidemiology and clinical manifestations. Though not overwhelming in size, this volume is packed with a wealth of information that will prove useful to all clinicians caring for patients with a rheumatic disease.

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Website: www.pres.org.uk

International Congress on Arthritis in the Elderly
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Contact: Organising Secretariat: Elena Romero
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7th EULAR Sonography Course
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Scientific secretariat: Professor Guido Valesini
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Website: http://www.americanbacksoc.org

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