

# Musculoskeletal disorders and the Global Burden of Disease study

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Specific data on different musculoskeletal (MSK) disorders from the Global Burden of Disease (GBD) study will be presented in this<sup>1-3</sup> and future issues of the journal.<sup>4-9</sup> MSK disorders are the second most common cause of disability worldwide, measured by years lived with disability (YLDs), with low back pain being the most frequent condition.<sup>10</sup> Disability due to MSK disorders is estimated to have increased by 45% from 1990 to 2010, in particular osteoarthritis (OA), and is expected to continue to rise with an increasingly obese, sedentary and ageing population.<sup>10</sup> The GBD study represents a huge and important effort that involves researchers and experts from different disciplines and countries with new statistical tools that provide us with valid information about the prevalence and burden of MSK disorders.

The specific conditions and disorders that will be addressed in this and forthcoming issues are low back pain, occupationally related low back pain, neck pain, OA, rheumatoid arthritis (RA), gout, low bone mineral density and other MSK conditions. Osteoporosis was not considered a disease in the GBD study, but bone mineral density was included in the global burden estimates as a risk factor for fractures. The methodological challenges will be addressed in a separate paper in the current issue. Even though there are some limitations, this effort is important for several reasons. In addition to the scientific interest, the data present a global perspective of MSK health and outline the impact of MSK disorders on individuals as well as society. These results provide researchers, healthcare providers and patient organisations with an excellent opportunity to encourage and increase awareness among policy makers to strengthen research and funding in this field.

The most common MSK disorders are low back and neck pain, which are still

poorly understood conditions. The biopsychosocial model has informed standard treatment over the last number of decades,<sup>11</sup> resulting in clinical guidelines promoting an approach where 85–90% of patients do not receive a patho-anatomical diagnosis. Clinicians are often left with a trial and error strategy regarding diagnostic investigation and treatment and apply generic symptomatic treatments such as advice to stay active and avoid bed rest, prescribing analgesic medications, providing reassurance and suggesting exercises. However, systematic reviews reveal that existing treatments have only small effects at best, regardless of whether interventions are based on biological, psychological or social approaches.<sup>12</sup> There is the potential for better management by implementing effective health promoting actions<sup>13</sup> and evidence supporting the recommendation of preventive measures such as weight loss<sup>14</sup> and exercise for low back pain.<sup>15</sup> The introduction of the biopsychosocial model has increased understanding of the complexity of chronic low back and neck pain, but research consortiums question the interpretation and application of the model, especially the lack of focus on biomarkers, in an effort to minimise the current gap in the understanding of disease mechanisms.<sup>11 12</sup> Even though there is good evidence to suggest that psychological constructs are significant predictors of outcomes such as more severe pain, greater functional disability and work loss, there is a strong need for better understanding of more specific factors, such as lifestyle, occupational and, in particular, biological factors, in order to improve diagnostic and therapeutic strategies and develop evidence-based preventive measures.

OA is the most common joint disorder, causing pain and functional disability. The burden due to OA is anticipated to further increase due to obesity and an ageing population.<sup>10</sup> OA is associated with low-grade inflammation,<sup>16</sup> but the underlying pathogenic mechanisms are not fully understood and currently there is no curative treatment. Management mostly depends on symptom state and the use of non-pharmacological and pharmacological therapy, with joint replacement as the treatment end point. Strong evidence

supports exercise and weight loss for the management of OA,<sup>17 18</sup> but there is room for improvement and the development of more specific and sensitive methods for early diagnosis, detailed phenotypic characterisation and targeted treatment for the different OA subgroups.<sup>19</sup>

However, over the last few decades there have been important advances in the diagnosis and treatment of some MSK disorders such as RA. The development of new and effective drugs for RA has improved long-term outcomes for patients and has also facilitated early diagnosis, allowing prompt treatment which improves functional outcome and prevents disability and joint damage.<sup>20 21</sup> Nevertheless, some patients do not respond adequately to treatment or experience adverse effects resulting in subsequent discontinuation of treatment. This underlines the need for an individualised approach combining clinical, biological and genetic and epigenetic predictors in order to optimise treatment for RA patients.<sup>22</sup>

There is still a need for epidemiological studies and public health actions promoting lifestyle changes such as weight loss and physical activity. Furthermore, it is necessary to focus on the underlying biological mechanisms and encourage researchers to combine and integrate data derived from longitudinal population-based cohorts and biobanks with detailed phenotypic data from trajectory and clinical studies as well as biological material in order to validate and identify novel biomarkers and risk factors. Combining genetic, molecular, paraclinical and clinical information will facilitate the translation of findings from basic science to clinical applications such as future preventive, diagnostic and therapeutic strategies. This will enable us to understand the impact of a wide range of determinants and risk factors for the development of different MSK disorders from early to old age, and help us preserve good health and develop effective and affordable strategies in order to respond to the growing disease burden, changes in demographic patterns and an ageing population.

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