6.12 Osteoarthritis

See Background Paper 6.12 (BP6_12Osteo.pdf)

Background

Osteoarthritis (OA) is a long-term chronic disease characterized by the deterioration of cartilage in joints which results in bones rubbing together and creating stiffness, pain, and impaired movement. The disease most commonly affects the joints in the knees, hands, feet, and spine and is relatively common in shoulder and hip joints. While OA is related to ageing, it is also associated with a variety of both modifiable and non-modifiable risk factors, including: obesity, lack of exercise, genetic predisposition, bone density, occupational injury, trauma, and gender.[1]

Osteoarthritis is the single most common cause of disability in older adults.[2] The 2010 Global Burden of Disease Study reports that the burden of musculoskeletal disorders is much larger than estimated in previous assessments and accounts for 6.8% of DALYs worldwide.[3] An estimated 10% to 15% of all adults aged over 60 have some degree of OA, with prevalence higher among women than men.[4] Across the EU Member States, diagnosed OA prevalence varies from 2.8% in Romania to 18.3% in Hungary.[5]

The prevalence of OA is increasing due to population ageing and an increase in related factors such as obesity. According to the United Nations, by 2050 people aged over 60 will account for more than 20% of the world's population.[6] Of that 20%, a conservative estimate of 15% will have symptomatic OA, and one-third of these people will be severely disabled. This means that by 2050, 130 million people will suffer from OA worldwide, of whom 40 million will be severely disabled by the disease.[6] Costs associated with OA include costs for adaptive aids and devices, medicines, surgery, and time off at work.[7]

Osteoarthritis is currently diagnosed by physical examination and, where necessary, with x-ray, MRI scan and arthroscopy. However, these diagnostic tools have low sensitivity and specificity. There are no biomarkers for OA that can be used in clinical practice at this time. The treatment of OA involves: treating associated pain; viscosupplementation with intra-articular hyaluronate injections; intra-articular corticosteroid injections; joint replacement surgery; and, in rare circumstances, autologous chondrocyte implantation into the damaged areas.[8,9,10]

While protective factors such as exercise, healthy diet, and occupational injuries can all be addressed, many risk factors such as gender, age, and genetics are not modifiable. The physical disability arising from pain and loss of functional capacity reduces quality of life and increases the risk of further morbidity. Although there is a wide range of devices and palliative medicines available that can relieve pain and improve quality of life, there is no pharmaceutical product that can halt or reverses the onset of OA.

Developments since 2004 and remaining challenges

Both pharmaceutical companies and EU initiatives are actively searching for therapies to treat OA and its associated symptoms.[11] There has been some progress in the search for new biomarkers since 2004 but pharmaceutical development is still limited by the lack of valid biomarkers.[12]

Research needs

Future research should be directed at addressing the gap in diagnostics and biomarkers for OA. This will help improve disease monitoring and help facilitate the development of medicines that can reverse the progression of this high-burden condition. There is currently a need for research in the following areas:

- The cost-effectiveness, safety, and efficacy of the long-term management of OA with the currently available pharmaceutical therapies.
- New imaging technologies, diagnostics, and biomarkers to more effectively measure the status and progression of OA.
- Evaluation of both the impact of risk factors and the effectiveness of potential therapies using these new diagnostics and biomarkers.

References

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