Pakistan

Overview

Pakistan has a rapidly growing population, with the percentage of elderly steadily increasing. Osteoporosis is therefore, increasingly being recognized by the medical fraternity as a significant health problem.

While there is no clear data on the number of (osteoporotic) hip fractures per year, estimates based on a large ultrasound study conducted throughout the country suggested that there are 9.91 million people (7.19 million women, 2.71 million men) with osteoporosis. These numbers are estimated to rise to 11.3 million (2020) and 12.91 million (2050). There is lack of information on epidemiology and demographics of fractures. Considering the low per capita income, the hospital cost of treating a hip fracture is very high. Also, there is a loss of earning capacity because of an average hospital stay of 7 nights after hip fracture, followed by extended limited mobility, which is most of the time not compensated.

Despite the enormity of this disease, diagnostic tools might not always be utilized or available. Reimbursement is inconsistent and limited at best. Equipment is usually available in urban centres only. Although calcium and vitamin D supplements are available, foods are rarely fortified with calcium or vitamin D.

Unfortunately osteoporosis is still not recognized as a major health problem. There have been individual and society efforts, but no government policy.

In summary, issues such as limited epidemiological data, lack of awareness at primary care physician level, and limited awareness about osteoporosis among the public, are major challenges in Pakistan. It is time to initiate multicentre studies and use governmental authority to regulate medications especially regarding efficacy of generics. Involvement of the government, medical societies and media, could go a long way in improving the current situation in Pakistan.

Key findings

The present population of Pakistan is estimated to be 172 million and expected to increase to 185 million by 2010, of this, 6.2% (11 million) will be above the age of 60 years. It is projected that the population will reach 226 million and 335 million by 2020 and 2050 respectively, of this, 7.1% (16 million) by 2020 and 14.9% (50 million) by 2050 will be the population aged over 60 years (figure 1).

Figure 1 Population projection for Pakistan until 2050

Accurate data on fracture incidence is lacking. Analysis of hip fracture cases from a single centre over 5 years showed that female: male ratio was 2, and that the average age at fracture was 61 years, which is lower than that in Europe and North America, but comparable to that reported from India.

An estimate based on an ultrasound study of 171,788 subjects across Pakistan, puts the number of people with osteopenia at 40 million (almost equal numbers of men and women), with almost 10 million having osteoporosis. In another, smaller study, again using ultrasound on women aged 45-70 years the prevalence of osteoporosis and osteopenia was found to be 16 and 34% respectively. In the North West Frontier Province, a similar study showed a prevalence of 29 and 42% respectively. A clinical
risk score administered to postmenopausal women in Peshawar suggested that as many as 75% were at risk for osteoporosis.

The direct cost of treatment of hip fracture varies from 4000 to 10 000 USD per case depending on the hospital. Most fractures are treated surgically, and the average hospital stay is 7-10 days.

Table 1 Hip fracture treatment

<table>
<thead>
<tr>
<th>% surgically treated</th>
<th>direct hospital cost (USD)</th>
<th>average hospital stay (days)</th>
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<tr>
<td>95</td>
<td>4000 to 10 000</td>
<td>7-10</td>
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Diagnostic facilities for osteoporosis are localized to large towns and cities. Sixteen DXA machines and about 150 ultrasound machines are available. Ultrasound usage is largely limited to promotional campaigns by pharmaceutical companies.

Figure 3 Repartition of the population in Pakistan

The cost for DXA varies from 12 to 50 USD (government vs private). The scan is usually performed on the same day. There are no reimbursements under government health plans but some private health insurances do reimburse on doctor prescription.

Table 2 Diagnostic tools and costs

<table>
<thead>
<tr>
<th>total DXA machines</th>
<th>DXA machine/10 000p</th>
<th>cost of DXA scan (USD)</th>
<th>income per capita per month (USD)</th>
</tr>
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<tbody>
<tr>
<td>16</td>
<td>0.001</td>
<td>12-50</td>
<td>201</td>
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Available evidence suggests that, like the rest of South Asia, vitamin D deficiency is a major issue in Pakistan too. Almost 8% of hip fracture patients in Karachi showed some evidence of osteomalacia on histology. In another study from Hazara district, multiparous women were found to be particularly vulnerable to osteomalacia. Low levels of 25(OH)D are the norm, rather than the exception, and more than 90% of ambulatory clinic patients could be affected. Even infants have been found to be deficient. Calcium intakes, especially among women, are generally low in Pakistan. One study from a region of Pakistan showed daily calcium intakes of postmenopausal women to be in the 300-500 mg range. Calcium and vitamin D supplements are readily available, but there is no program for fortification of food with either of them. There are no formal programs for the lifestyle prevention of osteoporosis.

Most drugs used in the treatment of osteoporosis are available with or without prescription, both in generic and branded forms. This includes bisphosphonates, oestrogen, raloxifene, calcitonin and parathyroid hormone.

Osteoporosis is not recognized by the government as a health problem and there are no policies or programs for prevention of osteoporosis and associated fractures. There are no government approved guidelines or physician guidelines nor any training programs for health professionals. The awareness of health professionals varies depending upon their specialty, with endocrinologists, rheumatologists and orthopaedists having a higher level of knowledge about the condition. The level of awareness among allied health professionals as well as the general population is limited. More recently, societies like the Osteoporosis Society, Menopause Society, and Pakistan Endocrine Society have made major efforts towards spreading awareness among health professionals, through national seminars as well as for the public through seminars and World Osteoporosis Day activities. Information material, including IOF material is available in the local language (Urdu) but dissemination is limited.

Overall, osteoporosis seems to be a significant problem in Pakistan. There are major nutritional (calcium and vitamin D) issues. Diagnostic facilities are very...
limited, but even those are not fully utilized. Most drugs used for treatment are available, but are not widely prescribed except by specialists. The major hindrances to proper and standardized diagnosis and management in Pakistan are the lack of solid epidemiological data on fractures, gaps in knowledge among primary health care professionals, and limited awareness among public. There is urgent need for large multicentric epidemiological studies, which will ideally have to be supported by governmental agencies. This lack of data leads to difficulty in convincing the government to take up action. Other challenges include the unsubstantiated use of indigenous herbal remedies, and lack of adequate stringency in controlling and standardizing generic formulations. To provide the population access to diagnostic services, there is an urgent need to install DXA machines in major government hospitals.

References

1. U.S. Census Bureau, International Data Base

One of the major limitations in Pakistan and other Asian countries is the lack of solid epidemiological data on fracture prevalence and the gaps in knowledge among health care professionals. Annual seminars on osteoporosis are organized by the national osteoporosis society to help further education among the medical community.