

Original article

Perception of severe osteoporosis amongst medical doctors in South Korea: Awareness, impact, and treatment

Jin Hwan Kim ^a, Ye-Soo Park ^b, Kwang Jun Oh ^c, Sae Young Lee ^d, Sun Young Lee ^d,
Seon Kyeong Lee ^d, Yoon-Sok Chung ^{e,*}

^a Department of Orthopaedics, Ilsan Paik Hospital of Inje University, Goyang, South Korea

^b Department of Orthopaedic Surgery, Guri Hospital, Hanyang University College of Medicine, Gyeonggi-do, South Korea

^c Department of Orthopaedic Surgery, Konkuk University Medical Center, Konkuk University School of Medicine, Seoul, South Korea

^d Lilly Korea Ltd, Seoul, South Korea

^e Department of Endocrinology and Metabolism, Ajou University School of Medicine, Suwon, South Korea

Received 4 December 2015; revised 3 February 2016; accepted 5 February 2016

Available online 2 March 2016

Abstract

Objectives: Little is currently known about the issues surrounding management and treatment of severe osteoporosis in South Korea. Our objective was to assess doctors' views on the perception, diagnosis, and treatment of severe osteoporosis.

Methods: Face-to-face interviews were conducted (16 February–13 March 2015) with 100 doctors (specialists in orthopedic surgery, endocrinology, neurosurgery, family medicine, or rheumatology) who treated ≥ 5 severe osteoporosis (T-score ≤ -2.5 , plus fracture) patients per month. Respondent demographic characteristics, their perception of severe osteoporosis, its impact and treatment, and their views on current practice and unmet needs were assessed.

Results: Of 416 doctors approached, 100 completed the survey (24% response rate). Most doctors (90%) specialized in orthopedic surgery, endocrinology, or neurosurgery. When diagnosing severe osteoporosis, most doctors (79%) considered both bone mineral density and fracture. Almost all doctors ($\geq 91\%$) ranked disease impact and seriousness highly, but much fewer ($\leq 25\%$) doctors thought society agreed. Most doctors (89%) had concerns with current treatments, switching treatments because of the efficacy and safety of bisphosphonates ($>89\%$), the efficacy of selective estrogen receptor modulators ($>71\%$), and the high cost of parathyroid hormone ($>73\%$). Parathyroid hormone was ranked highest for efficacy and was preferentially prescribed to severe osteoporosis patients (mean 32.2% of prescriptions) compared with osteoporosis patients overall (3.7%). “Limitations with reimbursement” was the most commonly cited (76%) unmet need.

Conclusions: There are concerns with the safety, efficacy, and affordability of current treatments for severe osteoporosis in South Korea, as well as a perceived lack of disease awareness amongst patients and doctors.

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Keywords: Bisphosphonates; Korea; Osteoporosis; SERMs; Teriparatide

1. Introduction

Osteoporosis is a worldwide health burden, especially amongst the elderly [1], and osteoporosis-related fractures,

especially hip fractures, are associated with substantial disability, morbidity, mortality, and economic cost [2]. Furthermore, the presence of a fracture is associated with increased risk of future fracture; hence, reduction of this fracture risk and its concomitant impact on health is one of the main goals of treatment [3].

In South Korea, osteoporosis is a growing health and economic concern that requires improved management. Osteoporosis is estimated to affect 38% of women and 7.3% of men

* Corresponding author. Department of Endocrinology and Metabolism, Ajou University School of Medicine, 164 Worldcup-ro, Yeongtong-gu, Suwon 16499, South Korea.

E-mail address: yschung@ajou.ac.kr (Y.-S. Chung).

Peer review under responsibility of The Korean Society of Osteoporosis.

over 50 years of age in South Korea [4]. A recent review comparing the age-standardized incidence of hip fractures in 62 countries suggested that the incidence rate in South Korea (231 per 100,000 population) may be one of the highest reported in Asia (only Taiwan [264 per 100,000] and Singapore [248 per 100,000] are higher) and may be higher than the rates in some countries in Europe and North America (for example, United Kingdom: 201 per 100,000; Canada: 211 per 100,000) [5]. Moreover, the proportion of the South Korean population over 50 years of age is expected to increase from 33% in 2013 to 57% by 2050, substantially expanding the number of osteoporosis patients [6]. The costs associated with osteoporosis and osteoporotic fractures in 2010 were 796 billion Korean Republic Won (707 million USD) and are predicted to increase [7]. However, South Korea, like many countries, has shown suboptimal use of osteoporosis treatments in patients with hip fracture [1]. More effective strategies to manage the increasing numbers of osteoporosis-related fractures in South Korea are urgently needed.

In order to improve management of osteoporotic fractures in South Korea, it is essential to evaluate the views held by doctors directly responsible for treating osteoporosis. A recent survey examined doctors' attitudes to several osteoporosis-related issues, including screening methods, secondary osteoporosis, long-term bisphosphonate (BP) use, and barriers to treatment [8]. However, this survey by Ha and coworkers did not distinguish between osteoporosis with and without fracture, nor did it consider the opinions of doctors on commonly used treatments for osteoporosis other than BPs. The presence of a fracture, combined with a T-score ≤ -2.5 standard deviations (SD) below the mean bone mineral density (BMD) of a young adult, has been classified as severe osteoporosis [9]. Given the serious impact of osteoporotic fractures on health and society, doctors' perspectives, specifically on the awareness, diagnosis, management, and treatment of severe osteoporosis, require further investigation.

Therefore, the aim of our study was to assess perceptions of severe osteoporosis amongst doctors in South Korea, including their views of the disease and its impact, their concerns with current treatments, and their views on the areas of disease management that require improvement.

2. Materials and methods

2.1. Study design

This survey consisted of face-to-face interviews with doctors in South Korea between 16 February and 13 March 2015. A sample size of 100 respondents was chosen and Gallup Korea (Seoul, South Korea), a market research company, was employed to carry out the interviews with doctors, through the use of paid assistants. Survey responses and the identities of the respondents were kept confidential, and doctors surveyed were provided with an honorarium for their participation. The study was conducted in compliance with the ethical principles of the Declaration of Helsinki.

2.2. Study population

A purposive sampling method was used to identify potential survey respondents who were members of academic societies related to orthopedics, endocrinology, neurosurgery, and rheumatology. To achieve a representative sample of doctors involved in osteoporosis treatment, a minimum of 20 respondents was required to be drawn from each of the three specialties reported to diagnose and treat large numbers of osteoporosis patients (based on data from the Health Insurance Review and Assessment Service [10]): orthopedic surgery, endocrinology, and neurosurgery. Survey responses from specialists in family medicine and rheumatology were also considered, but a minimum number of respondents from these two specialties was not required. The survey was discontinued or the data were not included for analysis if the doctors were working outside of a university hospital or a general hospital, did not have orthopedic surgery, endocrinology, neurosurgery, family medicine, or rheumatology as their primary medical specialty, or if they treated, on average, fewer than five patients with severe osteoporosis (T-score < -2.5 ; ≥ 1 previous fracture) per month. With these criteria, the aim of the study was to obtain viable responses from 100 doctors.

2.3. Questionnaire development

The questionnaire was in Korean and consisted of four parts: (i) demographic characteristics, (ii) perception of severe osteoporosis, its impact, and its treatment, (iii) current practice, and (iv) unmet needs (English language translation of questionnaire provided in [Supplementary Material](#)). The demographic characteristics of the respondents were assessed using questions based on a survey of doctors in South Korea conducted by Ha and coworkers [8]. The study authors and Gallup Korea developed the questions in parts (ii)–(iv) of the questionnaire. The survey consisted of open-ended questions, multiple-choice questions (most of which accepted multiple responses), and rank order questions. Doctors were also asked to rate various topics on a 5-point Likert scale. When assessing satisfaction with different treatment aspects, a rating of 1 indicated “not satisfied” and 5 indicated “very satisfied”. Similarly, for doctors' perceptions of different aspects of disease, a rating of 1 was “low” and 5 was “high”. The questionnaires were completed through face-to-face interviews, which lasted approximately 15 min.

2.4. Survey outcomes

The demographic characteristics of the doctors surveyed, including gender, age, type and years of experience in specialty, hospital type, and number of osteoporosis patients seen per month, were recorded. Doctors were then asked to define their criteria for the diagnosis of osteoporosis and to compare their views against society's views of the disease and its impact. Doctors' perceptions of the issues associated specifically with severe osteoporosis (as opposed to osteoporosis in

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