Influence of gastrointestinal events on treatment of osteoporosis in Asia-Pacific women: Perspectives from physicians in the MUSIC OS-AP study

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ABSTRACT

Background: The objectives of the physician survey component of the MUSIC OS-AP study were to describe physicians’ approaches to treatment of women with postmenopausal osteoporosis and to understand the influence of gastrointestinal (GI) events on treatment in clinical practice.

Methods: Physicians were recruited from 5 Asia-Pacific countries. Questionnaires collected information about physicians’ standard practices for treatment of patients with osteoporosis, as well as their perspectives on the influence of GI events on osteoporosis treatment approaches.

Results: A total of 59 physicians participated in the study. The most frequently prescribed or recommended treatments were vitamin D (84% of patients), calcium (82%), and oral bisphosphonates (59%). When choosing a medication for treatment-naïve patients, GI sensitivity was often or always a factor for 79% of physicians. Among physicians not prescribing pharmacologic treatment, a mean of 18% of non-prescriptions were due to GI sensitivity. For patients with pre-existing GI conditions, physicians most frequently ranked use of non-oral osteoporosis medication as the first treatment strategy (47%), followed by co-prescription with a proton pump inhibitor or other gastro-protective agent (31%). For patients developing GI symptoms after starting pharmacologic treatment, the most frequently first-ranked management strategy was to check if patients were taking their osteoporosis medication correctly as prescribed (64%), followed by temporary discontinuation of the medication (i.e., a drug holiday) until GI events have resolved (31%) and co-prescription with a proton pump inhibitor or other gastroprotective agent (24%).

Conclusions: These results suggest that GI events influence the prescribing practices of physicians in the Asia-Pacific region and sometimes result in non-treatment of women with osteoporosis.

1. Introduction

Osteoporosis is prevalent in the Asia-Pacific region, and the prevalence and burden of osteoporosis-related fractures are expected to increase over the coming decades as the populations of Asia-Pacific countries become older (Mithal et al., 2014). To reduce the risk of fracture, national and international guidelines recommend pharmacologic treatment for patients with an osteoporotic fracture, with evidence of low bone mineral density (BMD; generally corresponding to a T-score ≤−2.5), or with a combination of low BMD and increased fracture risk (National Osteoporosis Foundation, 2014; Meeta et al., 2013; Royal Australian College of General Practitioners, 2010; Kanis et al., 2013; Taiwanese Osteoporosis Association, 2010).

Gastrointestinal (GI) events are also prevalent in Asia-Pacific countries (Chang et al., 2012; Ghoshal et al., 2011; Peppas et al., 2008), and such events have been shown to be exacerbated by treatment for osteoporosis in Asian populations (Mok et al., 2013; Peng et al., 2014). Studies from the United States have found that a history of GI events can reduce the likelihood of initiating anti-osteoporosis treatment (Modi et al., 2015a; Colon-Emeric et al., 2007). However, little is
known about the influence of GI events on treatment practices in the Asia-Pacific region.

Osteoporosis treatment guidelines from Australia (Royal Australian College of General Practitioners, 2010) note the potential side effects of bisphosphonate use, but other than this, there is little guidance available for Asia-Pacific physicians regarding patients with a history of GI events. The Medication Use Patterns, Treatment Satisfaction, and Inadequate Control of Osteoporosis Study in the Asia-Pacific Region (MUSIC OS-AP) (Modi et al., 2015b) included a physician questionnaire that allowed us to assess the relationship between patients’ GI history and physicians’ prescribing practices. This article describes Asia-Pacific physicians’ approaches to the management of osteoporosis patients with GI events and identifies the physician-reported factors associated with the decision of whether or not to treat osteoporosis with pharmacotherapy in clinical practice.

2. Methods

2.1. Study design

The 3-component design of MUSIC OS-AP has been described in a previous publication (Modi et al., 2015b). In the component reported here—the physician questionnaire—physicians’ management of female osteoporosis patients was examined cross-sectionally, with an emphasis on the role of GI events in treatment decisions.

2.2. Study sample

Prior to the commencement of the prospective component of the MUSIC OS-AP study, each investigator completed a short physician questionnaire. Physicians from 5 Asia-Pacific countries (Australia, India, Korea, New Zealand, and Taiwan) were selected for participation via assessment of their experience in conducting clinical research, interest in participation, and ability to dedicate time and resources to the study. All study sites completed ethics reviews according to their local ethics board requirements.

2.3. Study outcomes

The questionnaire collected information about the physician’s standard practices for treatment of patients with osteoporosis. Physicians were asked how often they witnessed GI events (e.g., heartburn, upset stomach, nausea, or pain) and how often GI sensitivity impacted their decision to prescribe osteoporosis treatment and their choice of medication. Treatment strategies for patients who had pre-existing GI events or developed GI events after starting osteoporosis therapy were queried (e.g., prescribe a gastroprotective agent, recommend a drug holiday, or switch to another medication). The text of the questions is provided as a footnote to each table and figure.

2.4. Statistical analysis

The analyses were descriptive in nature, and no statistical comparisons were performed. Continuous variables are reported as mean percentage values, or as medians and ranges (minimum and maximum values). For survey questions with categorical responses (e.g., always, often, sometimes, rarely, and never), the percentage of physicians responding in each category is reported.

3. Results

3.1. Study participants

A total of 59 physicians completed the questionnaire: 20 from Australia/New Zealand, 15 from India, 15 from Korea, and 9 from Taiwan (Table 1). Sixteen worked at primary care clinics and 43 at specialty centers.

Table 1: Number of physicians by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>N (%) physicians</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia/New Zealand</td>
<td>20 (33.9)</td>
</tr>
<tr>
<td>India</td>
<td>15 (25.4)</td>
</tr>
<tr>
<td>Korea</td>
<td>15 (25.4)</td>
</tr>
<tr>
<td>Taiwan</td>
<td>9 (15.3)</td>
</tr>
</tbody>
</table>

3.2. Treatment and non-treatment of osteoporosis

When choosing a medication for treatment-naïve patients, renal insufficiency, menopausal status, and age were always a consideration for 54%, 49%, and 41% of physicians, respectively (Fig. 1). GI sensitivity was often or always a consideration for a combined 79% of physicians (Fig. 1). The most frequently prescribed or recommended treatments (Table 2) were vitamin D (84% of patients), calcium (82% of patients), and oral bisphosphonates (59% of patients).

3.3. Physicians’ observations regarding GI events

The GI events most frequently observed by physicians among their treated patients were upset stomach/indigestion (observed sometimes or often by 88% of physicians) and heartburn/acid reflux (observed sometimes or often by 85% of physicians; Fig. 2). Bloating was observed sometimes or often by 57% of physicians (Fig. 2). Physicians reported that a median (range) of 20% (0–75%) of patients had experienced upper GI events and 10% (0–40%) had experienced lower GI events before starting pharmacologic treatment, whereas they estimated that 10% (1–50%) of patients experienced a new GI event after starting treatment. New GI events were reported to commence within the first month of treatment by 75% of physicians and within the first 3 months of starting treatment by 98% of physicians.

3.4. Treatment strategies in patients with GI events

For patients with pre-existing GI conditions, physicians most frequently ranked use of non-oral osteoporosis medication as the first treatment strategy (47% of physicians), followed by co-prescription with a proton pump inhibitor or other gastro-protective agent (31%) and modification of the frequency or dosing of the drug (17%; Fig. 3a). For patients with GI symptoms developing after starting pharmacologic treatment, the most frequently first-ranked treatment strategy was to check if the patient was taking their osteoporosis medication correctly as prescribed (64% of physicians), followed by temporary discontinuation of the medication (i.e., a drug holiday) until GI events have resolved (31%) and co-prescription with a proton pump inhibitor or other gastroprotective agent (24%; Fig. 3b).

4. Discussion

This analysis of data from the physician questionnaire of MUSIC OS-AP provides novel insights into the role of GI events in the typical prescribing practices of a sample of physicians for osteoporotic women in the Asia-Pacific region. GI events, although not the most frequently considered factor, did appear to affect physicians’ decision to treat and the types of treatment prescribed. Physicians reported using different treatment strategies depending on the patient’s history of GI events.
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