Causes of low intake of calcium and Vitamin D supplements among Malaysian women

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Abstract

Introduction: Despite the importance Malaysian women give to the use of calcium and vitamin D supplements for the treatment of osteoporosis, the actual intake is low. The aim of this study is to inform physicians of the Tengku Ampuan Rahimah hospital about the causes of this low intake of calcium and vitamin D supplements.

Methods: Five physicians conducted 50 questionnaires among Malaysian, Chinese and Indian women with osteoporosis between 45 and 65 years old.

Results: 96% of the women take calcium supplements and 80% of the women take vitamin D supplements. The number of women taking vitamin D without knowing why (n=17) is significantly higher than the number of women taking calcium without knowing why (n=5).

Conclusions: Unlike the results of the literature study, the intake is high despite the low knowledge and poor information supply. Knowledge of vitamin D is lower than the knowledge of calcium; this is conform to the literature.

Discussion / recommendations: Further research in a private hospital in Klang can explain the high intake in this research and clarify, among others, the influence of the SES and the supplement prices on the intake of calcium and vitamin D supplements.
Introduction

The prevalence of osteoporosis is increasing among Malaysian women at the age of 50 and older since the increase of the modernisation and urbanisation of Malaysia\(^1\)\(^-\)\(^3\). Over 26% of the postmenopausal women in Malaysia suffer from osteoporosis. Of these 67.5% are from Chinese, 27.8% from Malays and 4.2% from Indian origin\(^3\).

Research by Chan, Boyd and Shuvayu shows that 45% of the women who receive treatment for osteoporosis find the intake of vitamin D supplements extremely important in the treatment of their disease (>8 at the scale of 1-10). For the intake of calcium supplements this is 69% (>8 on the scale 1-10). Surprisingly, only 13% of these women actually used the vitamin D and calcium supplements\(^4\).

Various studies have shown the importance to increase the awareness of vitamin D and calcium supplements usage in the prevention and treatment of osteoporosis in the Malaysian women\(^1\)\(^,\)\(^3\)\(^,\)\(^5\). A poor information supply and a lack of knowledge about these supplements is possibly why there is a low intake of calcium and vitamin D supplements. The aim of this research is to inform professionals of the Tengku Ampuan Rahimah hospital, who treat women with osteoporosis about the causes for the low intake of the calcium and vitamin D supplements.

A low intake in this research is defined as an intake below 45% for vitamin D and 69% for calcium supplements.

Methods

This quantitative research was carried out by questionnaires with 25 open and closed questions in English. The research population consist of 50 Malaysian, Chinese and Indian women in the age between 45 and 65 years old diagnosed with osteoporosis. The participants were recruited in the Orthopaedics Department in the Tengku Ampuan Rahimah government hospital in Klang, Malaysia. Five physicians interviewed their own patients at the end of the consultation. Data collection took place in May 2013 and took about two weeks. Dr. Z.I. NG put all the data in the online questionnaire. From there the data was put in SPSS 21. It was possible for dr Z.I. NG to see the resulting questionnaires. The exclusion criteria were women with other disorders of the skeleton other than osteoporosis and women suffering from a terminal illness.

The topics that were used for the questionnaires were:

- General questions
- Usage of calcium and vitamin D supplements
- Type of supplements
- General knowledge of calcium and vitamin D
- Nutrition
- Source of information about calcium and vitamin D supplements

Results

The intake of calcium supplements was 96% (see figure 1) and the intake of vitamin D was 80%.

The intake of calcium and vitamin D supplements is important to the participants in the treatment of osteoporosis. In a scale, ranging from one (no importance at all) to five
(extremely important), 72.9% participants gave five to the importance of the use of calcium supplements in the treatment and 25.0% gave a score of four (n = 48). For the importance of vitamin D 60.0% gave a score of five and 37.5% a score of four (n = 40). All participants that took supplements, were taking the supplements daily (n = 48).

Participants were asked for (multiple) reasons of taking calcium or vitamin D supplements (see figure 2). Seventeen (10.4%, n = 48) of the women answered not knowing why they used calcium supplements. A binomial test was performed to determine whether the relative number of women giving this reason for using vitamin D (42.5%, n = 40) equalled the measured relative number of women giving this reason for using calcium (5 / 48 = 10.4%). This test shows that the relative number of women who gave the reason “I don’t know why” for vitamin D differs significantly from calcium (p < .001, binomial test, n = 40).

For the question “Why do you use vitamin D?” all 17 participants who answered “My physician prescribed them to me” also gave the answer “I don’t know why”. The two-tailed fisher’s exact test show a correlation between these two answers (p < .001, FET, n = 40). There is no correlation between the same answers for calcium (p = .350, FET, n = 48).

Figure 3 shows the satisfaction with information received from the physician. The chi-square test of independence shows a strong correlation between reception of information about both supplements and the satisfaction ($\chi^2 (1) = 9.475$, $\phi = .435$, p = .002). Twenty participants (40%, n = 50) did not receive information about both supplements from the physician and also indicated that they were missing information. Only two participants (4%) received information about both supplements and still indicated that they were missing information.

All participants who received information (n = 23) about at least one of the supplements received information orally.

Figure 4 shows the preferred source of information of the participants who where missing information (n = 22). Brochures are the most preferred source of information. No participants gave the answer “Internet”.

Figure 3. Satisfaction with information.

<table>
<thead>
<tr>
<th>Reasons for taking calcium or vitamin D supplement</th>
<th>Calcium</th>
<th>Vitamin D</th>
</tr>
</thead>
<tbody>
<tr>
<td>To maintain healthy bones</td>
<td>24</td>
<td>26</td>
</tr>
<tr>
<td>My intake from food is insufficient</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>My physician prescribed them to me</td>
<td>17</td>
<td>11</td>
</tr>
<tr>
<td>I don’t know why</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

Figure 2. Reasons for taking supplements.

Conclusion

Unlike the results noted in the literature, the intake found in this research is high despite the low knowledge and poor information supply. Knowledge of vitamin D is lower than the
knowledge of calcium, this is conform to the literature.

Discussion

The results can be applied to the Orthopaedics Department in the Tengu Ampuan Rahimah hospital in Klang, Malaysia, but the results cannot be generalized to the entire Malaysian population. Also, the survey took place in one hospital and the research population is small (n=50).

Because of the high intake among the research population the causes of low intake of calcium and vitamin D supplements cannot be determined. The factors below could cause this high intake.

Firstly, this research is conducted in a government hospital. Supplements in these hospitals are provided free of charge. In private hospitals supplements are expensive.

Secondly, there might be a higher power distance between patients with a lower socioeconomic status (SES), such as in a government hospital, and the physician compared to patients with a higher SES. Women with a lower SES might therefore give socially desirable answers on the questions when interviewed by their physician.

Lastly, higher power distance may also result in more loyalty to the treatment.

Physicians in a government hospital treat hundreds of patients every day. They do not have enough time to provide sufficient information to the patient about the treatment with calcium and vitamin D supplements. The lack of knowledge and information supply might be an important cause of low intake, but they are possibly overruled by the factors above.

Recommendations

Further research in a private hospital in Klang is recommended to examine the gap between this study and the intake reported by Chan, Scott and Shuvayu. This can clarify, among others, the influence of the SES, power distance and the supplement prices on the intake of calcium and vitamin D supplements. In a private hospital these factors might not overrule lack of knowledge and poor information supply.

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