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Editorial

Overcoming the barriers of osteoporosis treatment—A better route and a longer use

The incidence of osteoporosis, defined as decreased bone mass and altered microarchitecture of the bone, has inevitably increased in postmenopausal women.[1,2] The subsequent morbidity arising from osteoporosis, which includes vertebral and/or hip fractures, can lead to debilitating health outcomes and a considerable economic burden on the health care system.[3,4] Therefore, recent attention, which includes the author's study in this issue, has focused on the use of various kinds of drugs to manage osteoporosis in postmenopausal women.[5]

There are several agents (i.e., antiosteoporosis drugs) available for treating osteoporosis such as conventional estrogen-based hormone therapy, bisphosphonates (e.g., alendronate, ibandronate, risedronate, zoledronic acid), calcite, selective estrogen receptor modulators (e.g., raloxifene), parathyroid hormone (e.g., teriparatide), and RANK ligand inhibitors (e.g., denosumab). All of these medications have demonstrated their efficacy in the prevention of osteoporosis and osteoporosis-related fractures—especially vertebral fractures—in postmenopausal women.[6,7] However, osteoporosis remains a challenging disease to treat because of several barriers such as occasional irregular patient adherence to therapies. The decision to use an antiosteoporosis drug should be tailored to the patient's specific clinical scenario.[8] The extent of compliance with osteoporosis pharmacological treatment, as measured by the medication possession ratio, is reportedly poor in clinical practice. Poor compliance is defined as a medication possession ratio less than the threshold of 0.80.[9] Noncompliance can arise from several different causes, which include an overlooked risk of osteoporosis and osteoporosis-related morbidity and mortality, an inconvenient use of an antiosteoporosis agent (e.g., teriparatide), adverse effects of an agent such as gastrointestinal upset after administration of the oral form of bisphosphonate, exacerbating climacteric symptoms after raloxifene use, and anxiety concerning unwanted adverse effects such as increased breast cancer risk with conventional estrogen-based hormone therapy.

Bisphosphonates are first-line agents in the treatment of osteoporosis and are efficacious in substantially reducing the fracture risk between 25% and 70%, on average, depending on the fracture site.[3] They also are the same agent as oral minodronate that is referenced in the authors' study published in the current issue.[5] However, patient compliance with oral bisphosphonate pills can be poor and significantly deter the proper management of osteoporosis. It is quite fortunate that the adverse effects of the current medication (i.e., oral minodronate) such as gastrointestinal upset or other uncomfortable potential consequences did not occur in this study.[5] We firmly believe that this antiosteoporosis agent may be more acceptable in the future, and result in higher patient compliance with osteoporosis medications. The authors unfortunately did not report the compliance of the study population in the current issue.[5] This element is important because reportedly only 34–55% of patients are compliant with approved osteoporosis treatment, and a significant decline in patient adherence to pharmacological recommendations in subsequent years is also apparent.[9] In addition, an inverse relationship between compliance and risk of fracture is well established. A progressive reduction in fracture risk starts at a medication possession ratio of 0.50. The greatest risk reduction was achieved at a medication possession ratio greater than 0.75 in a study of patients with osteoporosis who received the oral form of bisphosphonate therapy.[10] The overall risk of vertebral, hip or either one of both fractures was 20%, 46%, and 51% higher, respectively, in noncompliant patients with osteoporosis who were treated by bisphosphonate (odds ratio, 1.20, 1.46, and 1.51, respectively; 95% confidence interval, 1.07–1.35, 1.16–1.82, and 1.10–2.06, respectively).[10] By contrast, there is a 37% risk reduction in hip or vertebral fractures in compliant patients who received the same treatment of bisphosphonate.[10] The risk of hip fracture increased by 0.4% for every 1% decline in medication possession ratio,[9] which suggests that a better route and a longer use of antiosteoporosis agents may provide a maximally therapeutic effect for patients with osteoporosis. Therefore, a clinical trial needs to consider the compliance of patients to evaluate successfully the efficacy of an antiosteoporosis treatment. More compliant patients are more likely to have a reduced risk of fracture. Every effort should be made to participate in detailed conversations between patients and physicians and to provide a comprehensive explanation to patients because successful outcomes are associated with adherence and/or compliance.[11] In addition, adherence- and/or compliance-related outcomes are associated with beliefs about these antiosteoporosis agents, especially oral treatment with bisphosphonates.

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Conflicts of interest

The authors declare no conflicts of interest in relation to the subject matter or materials discussed in this article.

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Wen-Ling Lee
Department of Medicine, Cheng-Hsin General Hospital, Taipei, Taiwan, ROC

Department of Nursing, Oriental Institute of Technology, New Taipei City, Taiwan, ROC

Department of Nursing, National Yang-Ming University, Taipei, Taiwan, ROC

Department of Obstetrics and Gynecology, National Yang-Ming University, Taipei, Taiwan, ROC

Ben-Shian Huang
Department of Obstetrics and Gynecology, National Yang-Ming University, Taipei, Taiwan, ROC

Department of Obstetrics and Gynecology, National Yang-Ming University Hospital, Ilan, Taiwan, ROC

Yi-Jen Chen
Department of Obstetrics and Gynecology, National Yang-Ming University, Taipei, Taiwan, ROC

Division of Gynecology, Department of Obstetrics and Gynecology, Taipei Veterans General Hospital, Taipei, Taiwan, ROC

Peng-Hui Wang*
Department of Obstetrics and Gynecology, National Yang-Ming University, Taipei, Taiwan, ROC

Department of Nursing, National Yang-Ming University, Taipei, Taiwan, ROC

Division of Gynecology, Department of Obstetrics and Gynecology, Taipei Veterans General Hospital, Taipei, Taiwan, ROC

Immunology Center, Taipei Veterans General Hospital, Taipei, Taiwan, ROC

Department of Medical Research, China Medical University Hospital, Taichung, Taiwan, ROC

*Corresponding author. Dr. Peng-Hui Wang, Division of Gynecology, Department of Obstetrics and Gynecology, Taipei Veterans General Hospital, 201, Section 2, Shih-Pai Road, Taipei 112, Taiwan, ROC.
E-mail addresses: phwang@vghtpe.gov.tw, phwang@ym.edu.tw (P.-H. Wang).