



Original Investigation

Intervention on the prescribing of alendronate in higher than recommended doses[☆]

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ABSTRACT

Introduction: The aim of the study is to identify patients with inappropriate prescriptions of alendronate (70 mg) and to use an educational intervention to reduce medication errors.

Methods: A quasi-experimental, prospective before and after study was conducted, without a control group, where an intervention was conducted on prescribers of patients on pharmacological treatment with alendronate 70 mg in the period from 1 July 2013 to 30 June 2014. All subjects receiving more than 4 tablets per month were included. The intervention was to provide updated information to those responsible for health care and then assess whether or not they modified the patient prescription.

Results: Out of a total of 2283 patients receiving alendronate, it was found that a mean of 105 patients per month diagnosed with osteoporosis received the presentation of 70 mg. The mean age was 66.0±5.5 years, and the large majority ($n = 159$; 95.8%) were female. A mean of 22 patients were dispensed with more than 4 tablets per month (range: 8–38 tablets/month). The intervention managed to reduce those with a higher than recommended doses to 8 patients (63.6% of cases). Insurers were paying COP \$459,166 more on average each month for excess tablets dispensed, and the intervention achieved savings of COP \$3,491,592 per year.

Conclusions: Educational interventions on prescribers can reduce the number of potentially inappropriate prescribing and medication errors and reduce the risk to patients and health care costs.

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Intervención sobre la prescripción de alendronato en dosis superiores a las recomendadas

R E S U M E N

Palabras clave:

Alendronato
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Errores de medicación
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Introducción: Se buscaron pacientes con prescripciones inapropiadas de alendronato de 70 mg y mediante una intervención educativa reducir los errores de medicación.

Métodos: Se realizó un estudio cuasiexperimental, prospectivo, antes y después, sin grupo control, donde se llevó a cabo una intervención en prescriptores de pacientes que se encontraban en manejo farmacológico con alendronato de 70 mg en el período comprendido entre el 1 de julio de 2013 y el 30 de junio de 2014, incluyendo todos los sujetos que recibían más de 4 tabletas por mes. La intervención consistió en suministrar información actualizada a los responsables de la atención sanitaria y evaluar, meses después, si se modificó o no la prescripción de los pacientes identificados.

Resultados: De un total de 2.283 usuarios que recibían alendronato, se hallaron, en promedio, 105 pacientes mensuales con diagnóstico de osteoporosis que estaban recibiendo la presentación de 70 mg, con edad promedio de $66,0 \pm 5,5$ años y predominio femenino ($n = 159$; 95,8%). En promedio a 22 pacientes se les dispensaba más de 4 tabletas por mes (rango: 8-38 tabletas/mes). La intervención consiguió reducir a 8 pacientes con dosis superiores a las recomendadas, (63,6% de casos). Los aseguradores estaban pagando en promedio COP \$459.166 más, cada mes, por el exceso de tabletas dispensadas y la intervención logró un ahorro de COP \$3.491.592 al año.

Conclusiones: Las intervenciones educativas sobre los médicos prescriptores pueden conseguir disminuir el número de prescripciones potencialmente inapropiadas y de errores de medicación para reducir el riesgo sobre los pacientes y costes de atención en salud.

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Introduction

Osteoporosis is a complex metabolic disease characterized by a decrease in the bone density and defects in bone microarchitecture that compromises the biomechanical integrity of the skeleton,^{1,2} leading to an increased risk of fractures.^{3,4} In the United States it was estimated that about 10 million people suffered from the disease in 2004, with the consequent increase in the risk of hip and vertebral fractures.^{2,5} In Europe it is estimated that osteoporosis affects one out of every 2 women and one out of every 5 men older than 50 years.³

In the pharmacological management of osteoporosis have been used calcium supplements, vitamin D, estrogens, estrogen response modulators and bisphosphonates such as alendronate.⁶ This drug comes in presentations of 10 mg for daily dosing and of 70 mg to be taken each week.^{7,8} The administration of doses higher than 70 mg weekly does not improve the therapeutic effect but it increases the risk of adverse reactions and is considered an inappropriate prescription because it is associated with greater hypocalcemia, hypophosphatemia, and esophageal and gastric ulcers; therefore, the use of high doses of this medicine should be avoided.⁶⁻⁹

It should be considered that the Colombian healthcare system is based on the total insurance coverage of the population and it involves procedures, health technologies and drugs (including alendronate) that are contained in a plan of benefits denominated Mandatory Healthcare Plan (POS, by

its Spanish initials), which is administrated by a number of insurance companies called Health Promoting Entities (EPSs, by their Spanish initials).

Since it have been observed that there is a group of patients who were receiving doses higher than 4 tablets per month of alendronate 70 mg, the objective was to identify the subjects who were receiving dispensations of alendronate at higher than recommended doses and notify those who are responsible for healthcare, in order to reduce the possible medication errors of 3 EPS, in 13 cities of Colombia.

Methods

A quasi-experimental, prospective before and after study was conducted, without a control group, where it was carried out an intervention on prescribers of patients who were under pharmacologic management with alendronate 70 mg, in the period comprised between July 1, 2013 and June 30, 2014. The information was obtained from a population database of approximately 3.5 million people affiliated to 3 EPS of the contributory regime of the General System of Social Security in Health of Colombia, in 13 different cities, including all those subjects to whom Audifarma S.A. had dispensed more than 4 tablets of this drug per month.

The variables considered in the study were: socio-demographic (age, gender, city); pharmacological (monthly number of patients that were receiving alendronate 70 mg,

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