Persistence with osteoporosis medication treatments among Chinese patients with osteoporosis: a retrospective cohort study

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INTRODUCTION

- Osteoporosis, a chronic progressive disease, affects 32.0% of individuals aged 65 and older, including 51.6% of women and 10.7% of men in China.
- Inadequate treatment continuation increases the risk of fracture and mortality, and increased healthcare costs.
- However, the persistence of medication treatment among patients with osteoporosis in China remains unknown.

AIMS

- This study aimed to evaluate treatment persistence among Chinese patients with osteoporosis.

METHODS

STUDY DESIGN

- The study was a retrospective, observational cohort study utilizing electronic medical records (EMRs) obtained from a provincial healthcare database in Eastern China.

POPULATION

- Inclusion criteria: Patients diagnosed with osteoporosis and initiating anti-osteoporosis medications between January 2019 and October 2024.
- Exclusion criteria: Patients had prior osteoporosis medication use, more than one index medication, a diagnosis of Paget's disease or malignancy, missing demographic information, or a follow-up duration of less than six months.

OUTCOMES

- Persistence was defined as the time from therapy initiation to discontinuation, allowing a 60-day permissible gap, which was evaluated across treatment windows (naïve vs. non-naïve) and by index medication class.

STATISTICAL ANALYSIS

- Kaplan–Meier and log-rank tests: assess persistence.
- Cox proportional hazards models: identify predictors of non-persistence, adjusting for demographic and clinical factors.

RESULTS

- A total of 232,755 patients with osteoporosis were identified. The median follow-up time was 434 days (IQR: 125-908). The mean age was 65.2 years (SD = 13.5), and 72.9% were female.
- The 12-month persistence of denosumab (37.8%) was higher than other treatments, compared with PTHa (parathyroid hormone analogue) (28.6%), parenteral bisphosphonates (20.7%), oral bisphosphonates (7.9%), menatetrenone (7.8%), active vitamin D analogs (7.5%), MHT (menopausal hormone therapy) (2.7%), TCM (traditional Chinese medicine) and calcitonin (2.1%), and SERMs (selective estrogen receptor modulators) (1.8%) **(Table 1)**.

Table 1 persistence of each drug at 12months

Drugs	Individuals of Persistence	Individuals of Non-Persistence	% (95% CI)
Oral bisphosphonates	1,302	22,004	7.9 (7.6-8.3)
Parenteral bisphosphonates	832	3,221	20.7 (19.5-22.0)
Denosumab	2,378	8,090	37.8 (36.9-38.8)
Calcitonin	153	9,722	2.1 (1.8-2.4)
MHT	2	109	2.7 (0.9-8.2)
SERMs	2	108	1.8 (0.5-7.2)
PTHa	1	27	28.6 (16.7-48.9)
Active vitamin D analogs	9,060	141,210	7.5 (7.4-7.6)
Menatetrenone	112	2,485	7.8 (6.8-9.0)
TCM	350	22,551	2.1 (1.9-2.3)

- Persistence with oral medications was higher in non-naïve treatment windows than naïve treatment windows, which was particularly apparent for oral bisphosphonates (7.92% persistence at for naïve treatments vs 12.3% for non-naïve treatments). By contrast, persistence with parenteral bisphosphonates and denosumab was higher in naïve treatment windows than in non-naïve treatment windows **(Figure 1)**.

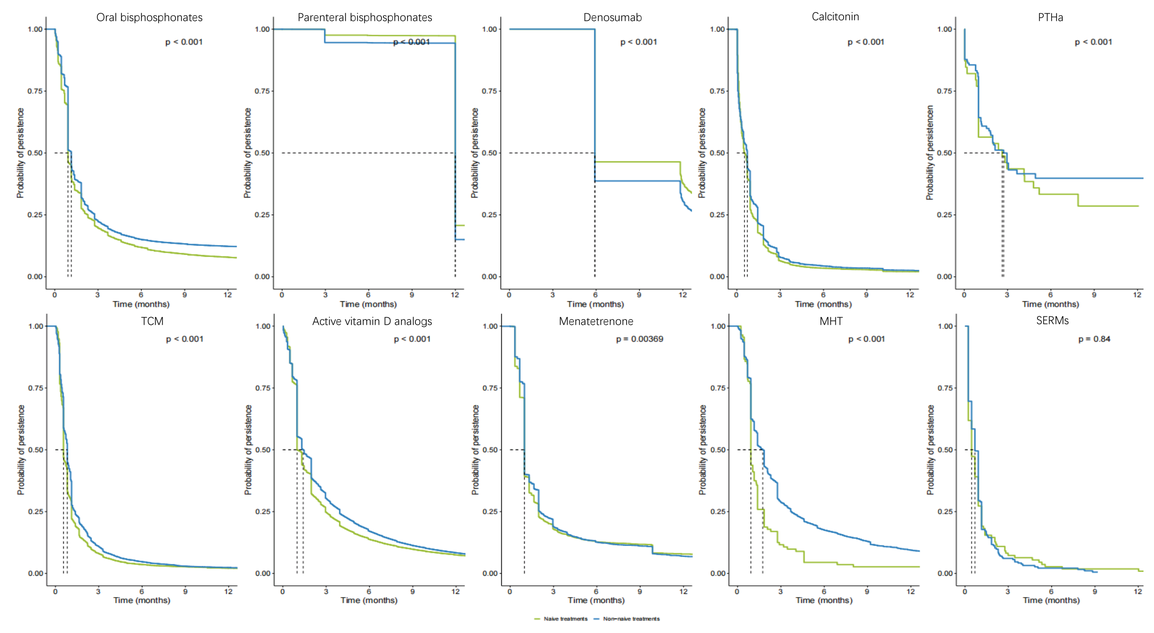

Figure 1 Kaplan–Meier analysis of discontinuation with medication class(naïve vs non-naïve treatments)

- Older age, female, osteoarthritis, and history of fractures were significantly associated with an increased risk of non-persistence.
- Patients with hypertension, diabetes, dyslipidemia, pneumonia, heart failure, ischemic stroke, rheumatoid arthritis, dementia, lupus, schizophrenia, or glaucoma were significantly less likely to discontinue treatment **(Figure 2)**.

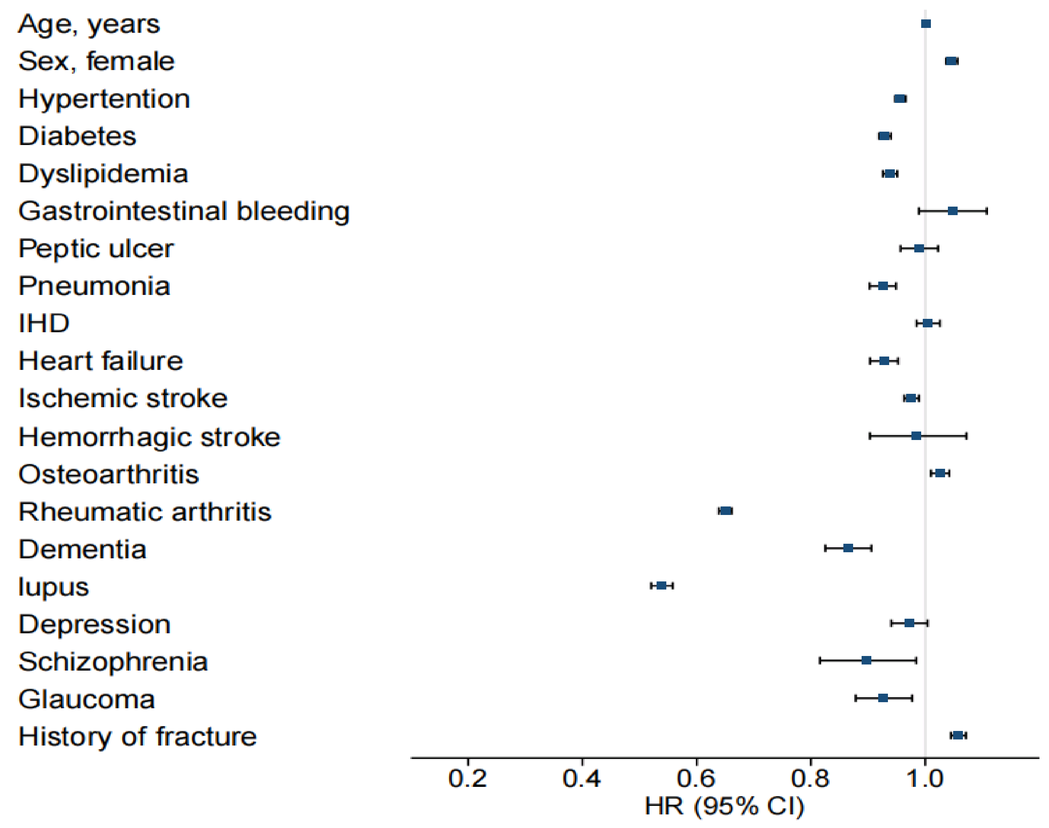

Figure 2 Hazards ratio and 95% confidence intervals for the associations between patient characteristics and non-persistence

CONCLUSIONS

Patients treated with denosumab exhibited higher treatment persistence compared to those receiving other AOMs, including oral bisphosphonates. Efforts to improve persistence are warranted, particularly among high-risk populations.

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