Association of Treatment Compliance with Fracture-related Hospitalisations and their Associated Costs among Hungarian Women with Postmenopausal Osteoporosis (PMO)

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INTRODUCTION

- Postmenopausal osteoporosis (PMO) is characterized by low bone mass and microarchitectural deterioration of bone tissue, leading to an increase in bone fragility and the risk of fractures.
- The economic burden of PMO is substantial, and expected to rise further with increased fracture incidence caused by demographic changes[1].
- Patients with prior fractures face an increased risk of subsequent fractures. Hence, the treatment goal is to prevent the first fracture, in particular hip and vertebral fractures that are associated with the largest costs and reduction in patient quality of life[1].
- In clinical practice, compliance to osteoporosis therapy is typically low. Such poor compliance has been associated with an increased risk of fracture, which could lead to increased risk of fracture - related hospitalisation[2,3,4].
- The objective of the study was to examine the association between compliance to osteoporosis therapy and fracture-related hospitalisation costs and to provide estimate of the fracture-related hospitalisation costs during the 1st year of PMO therapy in Hungarian women.

METHODS

- This retrospective database analysis used patients' attendance data from the National Health Insurance Fund Administration (NHIFA), which contains detailed provision data (medicine, out- and inpatient services) from the general Hungarian population.
- Eligible patients were females, ≥ 50 years old with a diagnosis of PMO (ICD-10 codes, M80.0 or 81.0), who
  - started an osteoporosis drug prescription (alendronate & combinations, denosumab, hormone replacement therapy, ibandronate oral & intravenous, risedronate & combinations, strontium ranelate, teriparatide and zoledronate) between 1st Jan 2004 and 31st Dec 2012 (analysis period) with a follow-up period of at least one year,
  - had a 13-month non-treatment period prior to this prescription (wash-out period; each patient was allowed to have ≥ 1 observation).
- For each observation, compliance was measured using medication possession ratio (MPR); with MPR≥80% considered compliant.
- Compliance, fractures, fracture-related hospitalisations & fracture-related hospitalisation costs were measured for 1 year after treatment initiation and summarized using descriptive statistics.
- Mean costs (not adjusted for inflation) were calculated per fracture-related hospitalisation, and per observation (i.e. denominator was the number of observations reporting a fracture-related hospitalisation, and number of observations, respectively).

RESULTS

Table 1. Fracture and fracture-related hospitalisation results by compliance category at 1 year

		Fractures			Fracture-related hospitalisations		
MPR	# of observations (%)*	# of fractures	% from # of observations†	% from # of fractures‡	# of fx-related hospitalisations	% from # of observations†	% from # of hospitalisations§
Total	215,376 (100)	7,582	3.52%	-	1,653	**0.77**%	-
Non-compliant (MPR < 80%)	123,069 (57.1)	5,524	4.49%	72.9%	1,153	0.94%	69.8%
Compliant (MPR ≥ 80 %)	92,307 (42.9)	2,058	2.23%	27.1%	500	0.54%	30.2%

"#," number; "-", not applicable; MPR, medication possession ratio. Percentage calculated from *total # of observations; †# of observations in each category; ‡total # of fractures; §total # of fracture-related hospitalisations

- A total of 185,759 patients met the inclusion criteria with 215,376 observations.
- During the 1st year of treatment, 3.52% of all observations had a fracture, 21.8% of which resulted in hospitalisation (0.77% of all observations) (**Table 1**).
- While 42.9% of all observations were compliant, these accounted for only 27.1% of all fractures and 30.2% of all fracture-related hospitalisations (**Table 1**).
- Compliant compared with non-compliant observations had half the probability of fracture (2.23% vs 4.49%) and fracture-related hospitalisation (0.54% vs 0.94%) (**Table 1**).
- Total fracture-related hospitalisation costs were 1.3 billion HUF (**Table 2**).
- Mean cost per observation was 51.8% lower for a compliant versus a non-compliant observation (3,719 vs 7,710 HUF) (**Table 2**).

Table 2. Cost of fracture-related hospitalisation by compliance category at 1 year

MPR	Total cost of hosp (HUF)	Mean cost per observation (HUF)	Mean cost per hosp (HUF)
Total	1,292,161,701	6,000	781,707
Non-compliant (MPR < 80%)	948,874,315	7,710	822,961
Compliant (MPR ≥ 80%)	343,287,386	3,719	686,575

hosp, fracture-related hospitalisation; HUF, Hungarian Forint; MPR, medication possession ratio

- Mean cost per fracture-related hospitalisation was 16.5% lower for a compliant versus a non-compliant observation (687k vs 823k HUF) (**Table 2**).

CONCLUSIONS

- Among Hungarian women, total costs arising from fracture-related hospitalisations during the 1st year of PMO treatment, were 1.3 billion HUF.
- Compared with non-compliant patients, those compliant to therapy had fewer fractures and fracture-related hospitalisations, and lower mean cost per fracture-related hospitalisation.

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DISCLOSURE

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