A Retrospective Cohort Study of Persistence & Compliance to Treatment for Osteoporosis in Postmenopausal Women in Hungary

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INTRODUCTION

- Osteoporosis is a condition characterized by low bone mass and microarchitectural deterioration of bone tissue and thus an increase in bone fragility and the risk of fractures.
- Several therapies are available for the prevention and treatment of osteoporosis, including estrogens, bisphosphonates and other interventions such as calcium & Vitamin D (1).
- Low persistence and poor compliance with prescribed medication are important factors in treatment failure.
- Studies have shown that up to 50% of patients drop out of osteoporosis treatment during the first year (2,3) and 30-50% of patients fail to take their medication as recommended (4).

OBJECTIVES

- Describe the Hungarian postmenopausal osteoporotic population.
- Estimate the persistence rate in the Hungarian population by postmenopausal osteoporosis (PMO) treatment administration interval and active substance.
- Estimate the level of compliance with all PMO treatments by administration interval and active substance in the Hungarian population.

METHODS

Study Population

- This retrospective 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 entire Hungarian population.
- Subjects were females, ≥50 years old with a diagnosis of osteoporosis (ICD-10 codes, M80 or 81) who started an osteoporosis drug prescription (see Table 1 for the therapies included in the study) between Jan 2004 and Jan 2011.

Study Design

Persistence measures the accumulation of time from treatment initiation to discontinuation of therapy.

- Persistence was quantified with the Estimated Level of Persistence with Therapy (ELPT) method, which determines the percentage of individuals remaining on therapy, i.e. refilling each subsequent prescription within the grace period (independent of the treatment regimen), at a given time.
- Treatment persistence was estimated per active substance and treatment regimen for 12 and 24 months with a 4-week grace period. Sensitivity analysis with grace periods of 8 and 12 weeks was performed.
- In this study, a patient was defined as persistent when:
  1. Refill prescription of the same drug regimen was within a permissible grace period from the end of the previous supply.
  2. The regimen interval (daily, weekly, monthly, etc) did not change for the follow-up prescription.

Compliance is the extent to which a patient acts in accordance with the prescribed interval and dosing regimen.

- Compliance was quantified with Medical Possession Ratio (MPR) for a fixed time period (365 days) and was calculated as the number of days covered by the prescriptions during the year divided by 365.
- A patient was considered compliant with treatment at 1 year if MPR ≥80%.

RESULTS

- 223,068 patients matched inclusion criteria. The characteristics of these patients at index date (i.e. the start of the analysis period) are described in Table 1.
- 49.7% of these patients were older than 70 years and 6.4% had prior fractures at index date.
- 79.5% of these patients were on oral bisphosphonates (OBPs), 8.2% on intravenous (IV) BPs and 12.3% on other therapies
- Weekly administration was most common, with more than half of the patients on alendronate.

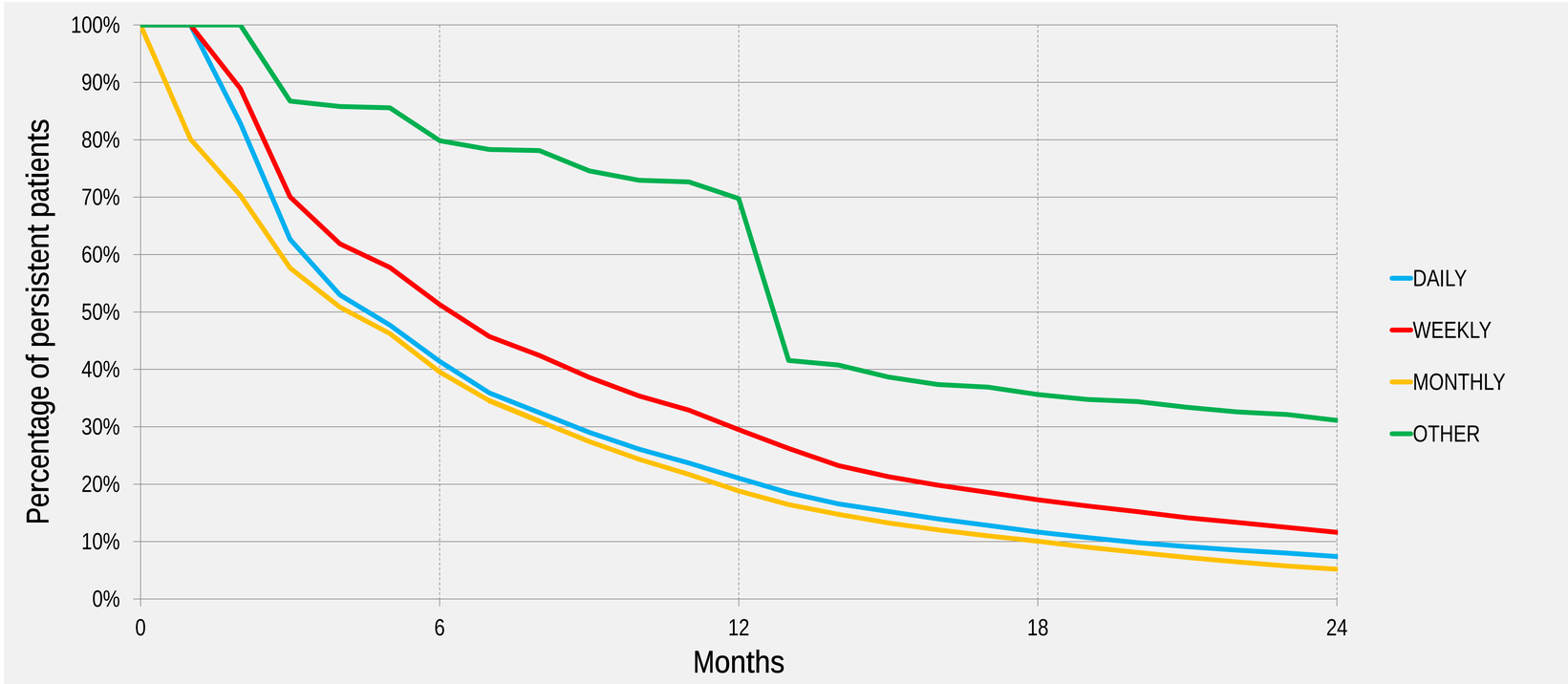
Table 1. Patient characteristics at their first index date

	N (%)
Age	
Total	223,068 (100.0)
50-59 yrs old	40,079 (18.0)
60-69 yrs old	72,201 (32.4)
70-79 yrs old	75,044 (33.6)
80-89 yrs old	33,627 (15.1)
≥90 yrs old	2,117 (0.9)
Previous fractures	
No fractures	208,868 (93.6)
≥1 fracture	14,200 (6.4)
1 fracture	11,852 (5.3)
2 fractures	1,877 (0.8)
≥3 fractures	471 (0.2)
Administration interval*	
Daily	27,524 (12.3)
Weekly	171,970 (77.1)
Monthly	5,441 (2.4)
Other (Quarterly/Yearly)	18,203 (8.2)
Treatment*	
Alendronate	126,595 (56.8)
Risedronate	45,375 (20.3)
Ibandronate IV	14,658 (6.6)
Strontium ranelate	14,373 (6.4)
Hormone replacement therapy	12,749 (5.7)
Ibandronate oral	5,441 (2.4)
Zoledronate	3,545 (1.6)
Parathormone	402 (0.2)

* 70 patients had two drugs prescribed at their first index date

- Study size is the number of index dates in the analysis and population size is the number of patients included in the analysis (with ≥1 index date).
- In the persistence analysis, the study size was 325,238 and the population size was 222,808.
- In the compliance analysis, the study and population sizes were 254,532 and 213,626, respectively.

Figure 1. Persistence with a 4-week grace period per administration interval



- The lowest persistence after 12 months was observed in daily (22%) and monthly (19%) compared to other (quarterly/yearly) drugs (70%) with a 4-week grace period.
- Persistence declined further at 24 months to 7%, 5% and 31% for daily, monthly and other drugs, respectively.
- Persistence analysis with 4-, 8- and 12-week grace periods showed that patients are more persistent after 1 year for injectable than oral drugs (Table 2).

Table 2. Persistence after 1 year for different grace periods

	4 weeks	8 weeks	12 weeks
Oral	27%	44%	61%
Injectable	69%	76%	80%

Table 3. Compliance by administration interval at 1 year

	No. patients	Compliant patients (%)	Average MPR
Total population	254,532	84,474 (33%)	54%
Administration interval			
Daily	39,264	7,642 (20%)	42%
Weekly	173,822	55,071 (31%)	53%
Monthly	21,138	6,579 (31%)	53%
Other	20,308	15,182 (75%)	85%

- 1/3 of the Hungarian osteoporotic female population was compliant with treatment (i.e. MPR≥80%) after 1 year (Table 3).
- However, compliance was higher with less frequent drugs, with the lowest compliance observed with daily oral drugs (19%).
- Compliance was higher to injectable drugs (74%) than oral drugs (30%).

CONCLUSIONS

- Persistence and compliance to osteoporosis treatment are very low among women with PMO in Hungary.
- However, injectable or less frequently administered drugs have higher persistence and better compliance than oral or more frequently administered drugs.
- Main limitations of this study are: i) patients were considered to be non-persistent if switching treatment & ii) it was not possible to adjust for some important confounding factors, e.g. BMD T-scores, as this information was not available.

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DISCLOSURE

- This study was sponsored by Amgen (Europe) GmbH and GlaxoSmithKline.
- M. Intorcia and E. Psachoulia are employees and shareholders of Amgen; P. Lakatos has received consulting, research and speaker fees and grants from many companies with drugs for bone diseases, including Amgen; E. Kovács, Z. Lang and E. Tóth are employees of Healthware Ltd and conducted this research under contract to Amgen.