

COST-EFFECTIVENESS OF BINOSTO® (BUFFERED SOLUBLE ALENDRONATE 70 MG) EFFERVESCENT TABLET FOR THE TREATMENT OF POSTMENOPAUSAL WOMEN WITH OSTEOPOROSIS IN ITALY

Hilgsmann M¹, Maggi S², Veronese N³, Sartori L⁴, Reginster JY⁵⁻⁶

¹ Maastricht University, Maastricht, The Netherlands

² CNR-NI, Aging Branch-Padua, Italy

³ University of Palermo, Palermo, Italy

⁴ University of Padua, Padua, Italy

⁵ University of Liège, Liège, Belgium

⁶ King Saud University, Riyadh, KSA

BACKGROUND

- Binosto® (buffered soluble alendronate 70 mg) effervescent tablet represents an alternative option to traditional oral bisphosphonates for the management of osteoporosis, being associated to a lower frequency of gastro-intestinal adverse reactions and greater medication persistence

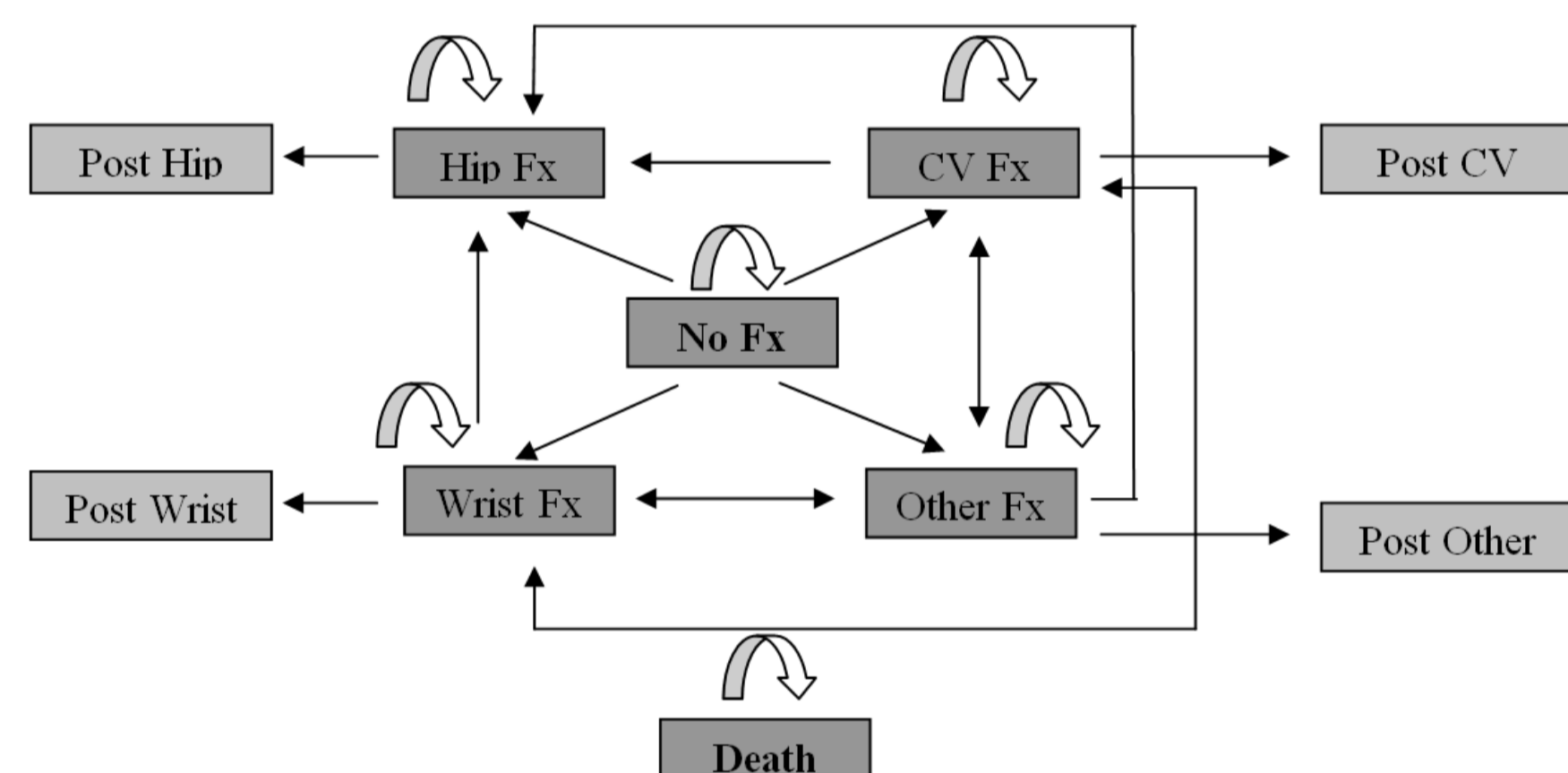
OBJECTIVE

- To assess the cost-effectiveness of Binosto® compared with relevant alternative treatments for postmenopausal osteoporotic women in Italy

METHODS

- A previously validated Markov microsimulation model was adjusted to the Italian healthcare setting to estimate the lifetime costs (expressed in €2019) per quality-adjusted life-years (QALY) of Binosto® compared with generic alendronate, denosumab, zoledronic acid and no treatment (see Figure 1)

Figure 1: Model structure



- Pooled efficacy data for bisphosphonates derived from the most recent NICE network meta-analysis were used for bisphosphonate treatments [2]
- Persistence data for Binosto® and generic alendronate were derived from an Italian prospective observational study including 144 and 216 patients on Binosto® and oral alendronate, respectively [3].
 - This study revealed that 91% and 81% of patients treated with Binosto® were persistent at 6 months and 12 months, respectively. For alendronate, 75% and 69% of patients were persistent at 6 and 12 months. In line with previous literature, it was assumed that 90% and 80% of patients under denosumab are persistent at 6 and 12 months respectively.
- Drug costs were derived from official listings from February 2020 and estimated at €16.18 per month for Binosto®, €13.48 per month for generic alendronate, €329.25 per 6-month for denosumab and €529.49 per year for zoledronic acid
- Analyses were conducted for high-risk women 60-80 years of age with a bone mineral density (BMD) T-score ≤ -3.0 or with existing vertebral fractures in line with reimbursement conditions in Italy (Nota 79)
- One-way and probabilistic sensitivity analyses were performed to test the robustness of the model results.

RESULTS

- In all simulated populations, Binosto® was dominant (more QALYs, less costs) compared to denosumab. (Table 1)
- The cost per QALY gained of Binosto® compared to generic alendronate and no treatment always fall below €20,000 per QALY gained.
- Zoledronic acid was associated with more QALY than Binosto® but the cost per QALY gained of zoledronic acid compared with Binosto® was always higher than €70,000 per QALY gained, meaning that zoledronic acid was not cost-effective.
- Probabilistic sensitivity analyses suggested that Binosto® was the most cost-effective intervention for willingness to pay between €5,000 and €75,000 per QALY gained (Figure 2).

Table 1: Incremental cost-effectiveness ratio (cost (€) per QALY gained) of Binosto® compared with no treatment, generic alendronate, denosumab and zoledronic acid for women aged 60-80 years

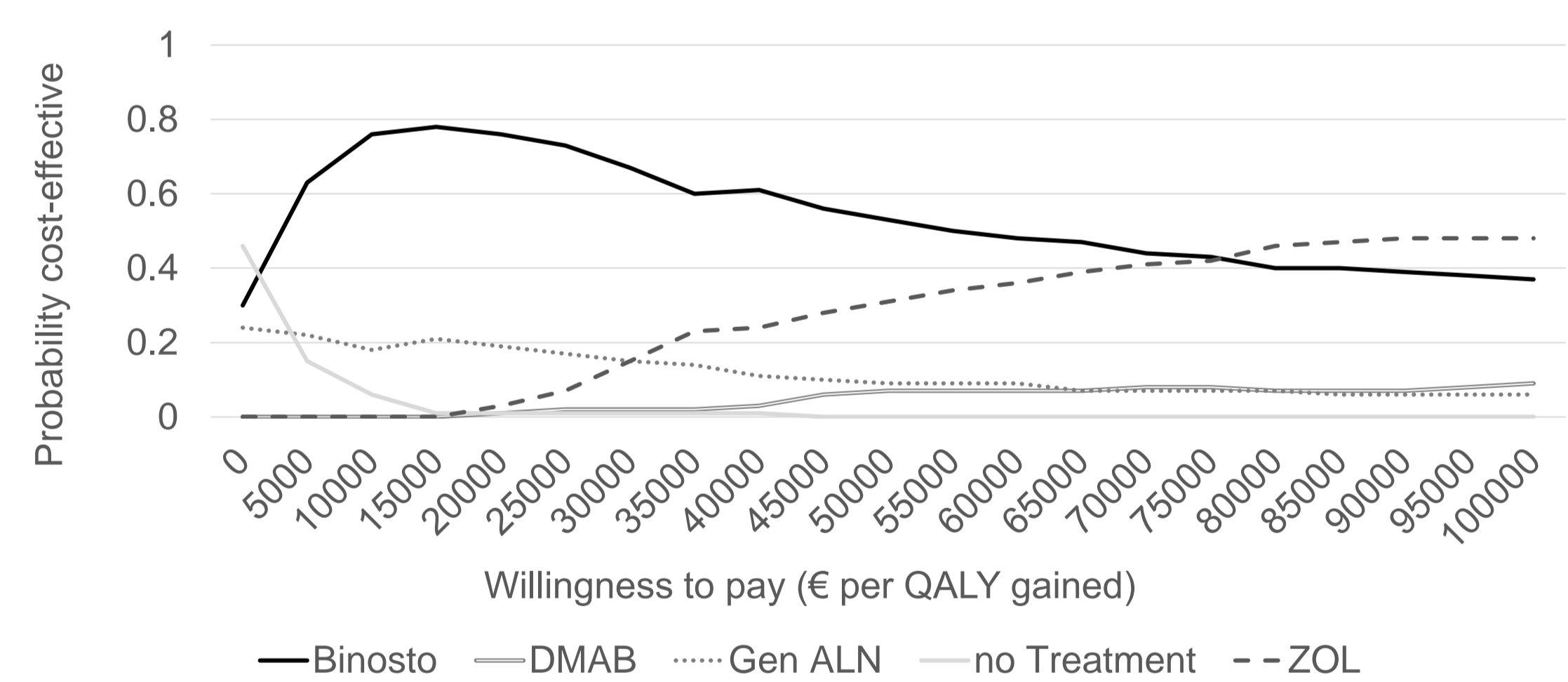
	Binosto®			
	vs no treatment	vs generic alendronate	vs denosumab	vs zoledronic acid
<i>BMD T-score ≤ -3.0</i>				
60 years	7,058	8,774	Dominant	236,003**
65 years	Cost-saving	Dominant	Dominant	100,064**
70 years	Cost-saving	Dominant	Dominant	122,769**
75 years	Cost-saving	Dominant	Dominant	74,171**
80 years	Cost-saving	Dominant	Dominant	87,453**
<i>Prevalent vertebral fractures</i>				
60 years	12,699	15,322	Dominant	128,098**
65 years	7,448	8,239	Dominant	133,339**
70 years	3,668	4,028	Dominant	121,514**
75 years	Cost-saving	Dominant	Dominant	77,693**
80 years	Cost-saving	Dominant	Dominant	71,467**

** ICER of zoledronic acid vs Binosto®

Dominant = Binosto® more QALYs, lower costs

Cost-saving = Binosto® more QALY and lower costs than no treatment

Figure 2: Cost-effectiveness acceptability curves of Binosto® compared with no treatment, generic alendronate, denosumab and zoledronic acid in women aged 70 with BMD T-score ≤ -3.0 and



LIMITATIONS

- Persistence data from one study (n=360 patients), and up to 1 year
- Long-term comparison to zoledronic acid and other treatments needed
- Side-effects of Binosto® were assumed to be similar than generic alendronate

CONCLUSION

- This study provides the first economic analysis of an alendronate effervescent tablet, suggesting that Binosto® represents a cost-effective strategy compared with relevant alternative treatments for postmenopausal women with osteoporosis in Italy aged 60 years and over.

REFERENCES 1. Hilgsmann et al. Value in Health 2009;12(5):687-96. 2. National Institute for Clinical Excellence and Health. Appraisal guidance [TA160]. 3. Giusti et al. Osteoporos Int 2018 29 S1 P853