Efficacy of Zoledronic Acid Relative to Other Treatments for Vertebral Fractures in Osteoporosis: Results of a Bayesian Mixed Treatment Comparison

**OBJECTIVES:** To evaluate the efficacy of zoledronic acid relative to other anti-resorptive interventions regarding the prevention of vertebral fractures in postmenopausal women with osteoporosis.

**METHODS:** Twelve randomized placebo controlled trials investigating the effects of zoledronic acid (1 study), alendronate (3), risedronate (2), ibandronate (1), etidronate (1), calcitonin (1), raloxifene (1), or strontium ranelate (2) in terms of fractures with a follow-up of 3 years (or 2 years if used for registration purposes) were identified with a systematic literature search. The endpoint of interest was morphometric vertebral fractures. Results of all trials were analyzed simultaneously with a Bayesian mixed treatment comparison (MTC). MTC is an extension of traditional meta-analysis by including multiple different pairwise comparisons across the range of different interventions.

With MTC the relative treatment effect of one intervention to another can be obtained in the absence of head-to-head evidence. In contrast to a frequentist approach, a Bayesian analysis allows for direct probabilistic inferences. Outcomes were analyzed using a random effects model. **RESULTS:** There is a 73.6% probability that zoledronic acid shows the greatest reduction in vertebral fractures of all interventions compared, followed by etidronate (23.2% probability) and ibandronate (1.8%). Zoledronic acid showed an OR of 0.28 (95% Credible Interval 0.19–0.40) relative to placebo, an OR of 0.62 relative to etidronate, and an OR of 0.55 relative to ibandronate. Corresponding probabilities that zoledronic provides a greater vertebral risk reduction are 99.9%, 79.6%, and 98.9% compared to placebo, etidronate, and ibandronate, respectively. Similar comparisons are under investigation for other fracture endpoints. **CONCLUSION:** Of the available treatments for osteoporosis, zoledronic acid is one of the treatments that provide greatest fracture risk reductions in general. Furthermore zoledronic acid showed greatest reductions regarding vertebral fractures.

**Correlation Between Predictors and Subsequent Surgical Management Following Internal Fixation of Femoral Neck Fractures**

**OBJECTIVES:** Regarding intracapsular femoral neck fractures, the main focus of research is the correlation between fracture-related complications and prognostic factors. The purpose of this study was to evaluate the correlation between complications required surgery (fracture-related treatment) and, among others, several less extensively investigated prognostic factors (day of surgery, co-morbidities, hospital type) in a 2-year period following internal fixation in young adults with intracapsular femoral neck fracture. **METHODS:** Retrospective analysis of femoral neck fractures occurred in Hungary in 2000, based on data obtained from the National Health Fund Administration. The data were validated and completed by a questionnaire carried out...
Patients with femoral neck fracture

The role of surgical delay on early mortality in patients with femoral neck fracture

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OBJECTIVES: The aim of the present study was to investigate the relationship between the delay of definitive surgical treatment and mortality rates occurring within 30 days post-injury in patients aged 60 or older with femoral neck fracture.

METHODS: Data were obtained from the database of the National Health Insurance Fund and from the questionnaire survey carried out by the institutions providing the treatment. Logistic regression analysis was performed to analyse the correlation between mortality risks within 30 days and delayed surgery in patients operated at 12–24 h, 24–48 h or after 48 h post-injury in comparison with mortality risks associated with early (within 12 h) treatment.

RESULTS: The number of patients meeting the case definition criteria was 3777 with the average age of 77.97 years. Mortality rates in four groups were 7.7%, 10.5%, 10.5% and 9.4%, respectively. According to multiple regression analysis, all three groups (12–24 h, 24–48 h and the over 48 h) showed a trend to increased mortality risks but this was not statistically significant (OR12–24 h = 1.301 CI12–24 h: 0.945–1.791, p = 0.106; OR24–48 h = 1.384 CI24–48 h: 0.932–2.056, p = 0.108; OR48 h < 0.246 CI48 h < 0.950–1.635, p = 0.113). Sex, age and accompanying diseases significantly influenced early mortality, while early post-operative complications did not have a significant impact on the mortality risks.

CONCLUSION: The results of the present study indicate the importance of early surgery in the treatment of femoral neck fractures in order to decrease early mortality associated with the disease in the elderly populations. Our results highlight the importance of further evaluating the reasons behind the delay in the surgical treatment (problems during treatment, difficulties in surgical access, co-morbidity etc.), especially in cases when surgery is performed with a 24 h or longer post-injury delay in order to determine factors that influence the prognostic significance of surgical delay in the case of different patient groups.

OSTEOPOROSIS—Cost Studies

Economic impact of French new guidelines on post-menopausal osteoporosis diagnosis

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OBJECTIVES: With at least 150,000 osteoporotic fractures in France, annual cost for osteoporosis consequences was estimated to about €600 millions. Poor diagnosis rate led French authorities to decide reimbursement of bone mineral densitometry (BMD) for osteoporosis high risk population in July 2006 (i.e. postmenopausal women with at least one risk factor as defined by the National Union of the Health Insurance Services). Our study was aimed to estimate the prevalence of osteoporosis risk factors so as to assess the economic impact of this case-finding strategy.

METHODS: This cross-sectional epidemiological surveillance was carried out within a representative population of women aged 45 years and over constituted using a stratified random sampling method (age, sex, socio-professional group, and employment status). Face-to-face home interviews determined eligibility of women for BMD-screening and whether they had underwent a BMD and received a diagnosis of osteoporosis. Direct costs were assessed from the perspective of the health care providers (i.e. BMD and physician consultation: 39.96€ and 18.60€ respectively). RESULTS: In our sample, 79.6% (2081) of women were menopausa. 51.8% of them were eligible for BMD-screening and 11.6% were already diagnosed by BMD with osteoporosis. Among the diagnosed women, a third (31.0%) didn’t have any risk factors and would not be eligible for the screening. Based on these results, number of French eligible women for BMD-screening would be about 5.8 millions associated with a total cost of €342 millions. Women diagnosed by BMD were 1.3 million and could also achieve 2.3 million representing a cost per patient screened of 1669€. CONCLUSION: According to this study, the French case-finding strategy for postmenopausal osteoporosis would cost €342 millions and would lead to treat an additional one million patients.

LITERATURE REVIEW ON THE COSTS OF NON-COMPLIANCE IN OSTEOPOROSIS

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OBJECTIVES: Medication compliance is a significant factor contributing to the clinical- and cost-effectiveness of therapy. This study aimed to investigate the evidence on the overall cost of non-compliance with medication, taking osteoporosis therapy as an example.

METHODS: The specific question addressed was “What are the direct medical health care costs of non-compliance and non-persistence in osteoporosis?”. A literature review was conducted to search for publications presenting work under the broad terms “costs”, “compliance/persistence” and “osteoporosis”. The databases searched were Medline, EMBASE, and the Cochrane Library. The listings were then appraised to identify those papers relevant to the study question and for inclusion in