OBJECTIVE: The cost-effectiveness of bone mineral density (BMD) screening and hormone replacement therapy for individuals with osteoporosis and osteopenia are well documented. The objective of this study was to estimate the economic impact of administering supplemental calcium and vitamin D3 to post-menopausal women with unknown BMD but such easily identifiable risk factors as advancing age, maternal family history of hip fractures, smoking, and prior fragility fractures after the age of 50 in Sweden.

METHODS: We developed a Markov model for analyzing the occurrence and timing of hip fractures for cohorts of women (aged 50 to 90), almost entirely based on peer-reviewed data from Sweden. In a three-year randomized clinical trial, the combination of calcium and vitamin D3 was shown to reduce the risk of hip fractures by 27 percent. Costs for treating hip fracture were based on 1080 women who were hospitalized in Stockholm.

RESULTS: We estimate that 22 to 23 percent of 50-year-old women in the general population will experience at least one hip fracture in their remaining lifetimes if untreated. Lifetime intervention with calcium and vitamin D3 in the general population starting at age 61 was estimated to be cost saving. The cumulative incidence and cost for individuals with a maternal family history, smoking habit, and a prior fragility fracture after the age of 50 were found to be higher than for osteopenia. Lifetime intervention with calcium and vitamin D3 was found to be cost saving in women as young as their early 50’s.

CONCLUSION: There is a clear role for lifetime calcium and vitamin D3 treatment in Sweden, with especially strong support for providing them to women over 60 years old or to women as young as 50 in the presence of such easily identifiable risk factors as a maternal family history of hip fractures, a prior fragility fracture or smoking habit.

CARDIOVASCULAR DISEASE

LONG-TERM COST-BENEFIT SIMULATION OF SIBUTRAMINE USING A MARKOV MODEL
Evers T, Lauterbach K
University of Cologne, Cologne, Germany

OBJECTIVES: Many drugs show long-term rather than short-term benefits. Moreover, most clinical studies were too short to give evidence of cost savings. Therefore, we developed a simulation model to estimate the costs and benefits of BMI lowering drugs within a time frame of 10 years. We applied this simulation, a Markov model, to data from 4429 patients (20 studies) treated with the weight-management agent sibutramine or placebo. Both groups also received diet and exercise advice.

METHODS: As major savings of lipid and BMI lowering drugs will be induced by reductions incidence rates for hypertension, CHD and diabetes (H-CHD-D), we restricted our model to these diseases. We chose a time frame of 10 years. In order to estimate changes in the incidence rates of H-CHD-D we used risk-equations data derived from large epidemiological studies. Our Markov model contains the following disease states: no disease; only hypertension; diabetes without CHD; CHD, and death. We estimated the transition probabilities by using the respective risk equation. Finally, each state was linked to annual costs. Using this simulation, we could estimate the individual costs for hypertension, CHD, and diabetes for each of the patients within the time frame of 10 years. The mean difference in costs between the sibutramine and placebo groups was considered to be savings induced by the sibutramine therapy.

RESULTS: The 10-year incidence rates (sibutramine vs. placebo) were 22.3% vs. 33.8% (hypertension), 4.5% vs. 6.1% (CHD), and 19.4% vs. 21.3% (diabetes). The mean costs induced by H-CHD-D were 8042 DM for sibutramine and 9671 DM for placebo, a reduction of 1629 DM.

CONCLUSION: Considering annual sibutramine costs of 912 DM, a net benefit of 717 DM over 10 years per patient results. This is a conservative estimate as only three diseases related to obesity were included.

COST-EFFECTIVENESS ANALYSIS OF CLOPIDOGREL COMPARED WITH TICLOPIDINE IN THROMBOSIS PREVENTION
Vorobiiov P1, Barkagan Z2, Avxentieva M3, Gerasimov V3, Sura M4, Derkach E1
1RSPOR, Moscow, Russia; 2Altai Medical University, Barnaul, Russia; 3Moscow Medical Academy, Moscow, Russia

OBJECTIVE: To determine the cost-effectiveness of thrombosis prevention with Clopidogrel versus Ticlopidine in Russia.

METHODS: Clinical efficacy of Ticlopidine 250 mg daily versus Clopidogrel 37.5 mg daily was evaluated in a comparative clinical trial including 30 days follow-up of 70 patients with thrombophilia. Clinical efficacy was measured by percentage reduction in spontaneous platelet aggregation (SPA) that was considered to be a prognostic indicator for thrombosis. Costs for medication were calculated. Cost-effectiveness ratio (CER) was defined for both drugs, and incremental cost-effectiveness ratio (ICER) was determined.

RESULTS: Mean percent SPA reduction from baseline level was 63.3% in the Clopidogrel group, and 48.8% in the Ticlopidine group. The mean cost for 30 days of Clopidogrel treatment was 1221 rub (42,1$) compared to 795 rub (27,4$) for Ticlopidine. The CER for Clopidogrel was 19,2 rub (0,66$) per 1% SPA reduction; for Ticlopidine—16,2 rub (0,56$) per 1% SPA reduction. ICER for Clopidogrel group versus Ticlopidine group was 29,17 rub (1,01$) per 1% SPA reduction.

CONCLUSION: Clopidogrel 37,5 mg daily achieved a greater percentage reduction in SPA than Ticlopidine 250 mg daily. Costs for Clopidogrel were higher than for Ticlopidine, though ICER suggests that additional effect can be achieved relatively inexpensively. For final conclusion, the safety of both drugs should be taken into account.