complications. Orlistat, a drug for achieving and maintaining weight loss, reduces cardiovascular risk factors in randomized clinical trials. The objectives of this study were to estimate the resulting long-term clinical consequences and cost-effectiveness of treating obese type 2 diabetic patients with orlistat.

METHODS: A Markov model was developed to predict, over a 10-year period, the complication rates and mortality with and without a two-year orlistat treatment, assuming a five-year weight catch-up period after treatment according to epidemiological evidence. A stepwise approach was used to apply published clinical data into prediction of long-term outcome. As a first step, the impact of orlistat on HbA1c, blood pressure and cholesterol was obtained. In a second step, the impact of decreasing these risk factors on mortality and micro- and macrovascular complications was obtained. Four subgroups, defined by the presence of arterial hypertension and/or hypercholesterolemia, were studied.

RESULTS: Cost-effectiveness varies between 3,462 Euro/ life year gained (LYG) for obese diabetic patients with hypertension and hypercholesterolemia, and 19,986 Euro/ LYG for obese diabetic patients without other risk factors. Sensitivity analyses on all relevant variables indicate that these results are very robust.

CONCLUSIONS: Our results suggest that orlistat is cost-effective in the management of obese type 2 diabetic patients, especially in those with concomitant hypercholesterolemia and/or hypertension.

EXCESS MORBIDITY AND COST OF FAILING TO ACHIEVE TARGETS FOR BLOOD PRESSURE CONTROL IN THE ELDERLY

Lloyd AC1, Hansson L2, Anderson PM3, Kopp ZS3, Buch J1
1Fourth Hurdle Consulting Ltd, London, UK; 2University of Uppsala, Uppsala, Sweden; 3Pfizer Inc, New York, NY, USA

OBJECTIVE: Despite the existence of effective therapy, millions of Europeans have blood pressure (BP) above internationally agreed targets for control of cardiovascular risk. There is particular resistance to aggressive management of the elderly. We estimated the acute health-care costs resulting from failure to achieve BP targets in older adults in France, Germany, Italy, Sweden and the UK.

METHODS: We constructed a burden of disease model to estimate the costs of uncontrolled hypertension in this group. Prevalence of uncontrolled hypertension was taken from the MONICA study and published surveys. The relationships between three cardiovascular (CV) events (symptomatic acute myocardial infarction (AMI), congestive heart failure (CHF) and stroke) and BP were estimated from a large prospective study (the HOT trial). Costs came from government sources and published studies. We estimated the acute medical costs of these events at current prevalence of uncontrolled hypertension and expected number of events and cost if BP were treated to target levels. Stochastic simulation was used to construct confidence intervals.

RESULTS: Among adults older than 65 years in the five countries, an estimated 15.2m have BP above 160/95 mmHg and a further 12.9m have BP in the range 140/90–160/95 mmHg. The model estimated that 505,000 CV events (AMI–91,000; CHF–190,000, stroke–224,000) occur each year in those older than 65 in these countries, resulting in annual acute hospital costs of Euro2.3Bn (95% CI Euro2.04–2.53Bn). One hundred twenty eight thousand of these events (AMI–9,000; CHF–55,000, stroke–64,000) could be avoided if BP targets were met. The annual cost of these avoidable events was estimated to be Euro560m (95% CI Euro300–783m), representing 24.2% of the acute medical cost of these CV events in this population.

CONCLUSION: Failing to implement existing guidelines for BP management in the elderly contributes substantially to the total human and economic burden of CV disease.

PRACTICAL DESIGN ISSUES

PATIENT-REPORTED OUTCOMES: A COMPARISON OF TWO DATA-CAPTURE METHODS

Hufford MR1, Noe L2
1Invivodata, Inc, Pittsburgh, PA, USA; 2Ovation Research Group, Highland Park, IL, USA

OBJECTIVE: The reliable and valid capture of patient-reported outcomes (PROs) are becoming increasingly important endpoints for the pharmaceutical industry. PROs are data reported by the patient, and can include health-related quality of life, functional status, symptoms, pain, bother, satisfaction, work loss, reduced productivity, and the use of medical resources. These data, when included in studies, have traditionally been collected using paper-based methods. Technological advances in electronic data capture, such as handheld computers, internet-based solutions, and interactive voice-response systems, facilitate collecting PROs and are important new tools for clinical and outcomes researchers. Our objective was to examine compliance rates between a handheld computer diary system and a paper-based diary.

METHODS: Eighty pain patients were randomly assigned to complete a three-week, diary-monitoring protocol using either a compliance-enhanced electronic diary system or a paper diary. The paper diary was covertly instrumented to allow for objective determination of when the diary was opened or closed.

RESULTS: Participants submitted diary cards corresponding to 89% of assigned assessment times (±15 min). However, the electronic record indicated that actual compliance with the paper diary was only 11%, indicating a high level of faked compliance. On 32% of all study days the paper diary was not opened, yet reported
Compliance for these days exceeded 90%. Evidence for back and forward filling of paper diary cards was observed. For the compliance-enhanced electronic diary, the actual compliance rate was 93%.

CONCLUSIONS: Data from paper-based diaries are of questionable validity, given that many of their entries are not completed as required by the protocol. Science-based electronic diaries can produce high rates of patient compliance in the field. Improved methods for data collection should encourage researchers in the pharmaceutical industry to aggressively evaluate electronic PRO (ePRO) data to help differentiate their products.

**POWER CALCULATIONS FOR WIDELY USED PATIENT-REPORTED OUTCOMES (PRO) MEASURES IN WOMEN’S HEALTH TRIALS**

Abetz L1, Brandman J1, Plante M3
1Mapi Values, Cheshire, UK; 2Pfizer Pharmaceutical Group, New York, NY, USA; 3Pfizer Inc, Ann Arbor, MI, USA

OBJECTIVE: Increasingly, federal authorities are requesting power calculations for secondary endpoints in clinical trials, including patient reported outcomes (PRO). However, most PRO measures do not provide power calculations in their manuals; if provided, they are often based on mixed samples of males and females. It is well documented that female and male PRO scores often differ. Thus when designing women’s health trials, it may be worthwhile to conduct power calculations using women’s PRO scores and standard deviations. This study presents the power and sample-size calculations for a variety of questionnaires used in women’s health studies.

METHODS: The Menopause Quality of Life questionnaire (MENQOL), Women’s Health Questionnaire (WHQ), Psychological General Well-Being Index (PGWB), and Short Form 36 and 12 (SF-36/SF-12) were assessed. Published information on scores and standard deviations in female populations were used to determine sample sizes needed to detect differences between two experimental groups, post-intervention.

RESULTS: Results varied by questionnaire, due in part to varying score ranges across questionnaires. For example, to achieve 90% power with a ten-point difference the following sample sizes per treatment arm were required: 158 women when using the MENQOL vasomotor score (range: 0–100); 47 women when using the WHQ total score (range: 0–102); 70 women when using the PGWB total score (range: 22–132); 24 and 21 women when using the SF-36 and SF-12 Physical Component Summary (no floor/ceiling).

CONCLUSION: When calculating sample sizes, it is necessary to keep in mind the questionnaire’s possible score range in order to ensure that the power calculation is based on a clinically meaningful difference between treatment groups. These results may be used to help calculate sample sizes needed to achieve sufficient power to detect statistically significant differences in women’s health trials for these widely used measures.