OBJECTIVES: To assess the cost-effectiveness, from the UK NHS perspective, of magnetic resonance angiography (MRA), duplex ultrasound (DUS) and computed tomography (CT) compared with contrast angiography (CA) in assessing the extent and location of stenosis and subsequently formulating a treatment plan for patients with peripheral arterial disease (PAD).

METHODS: A probabilistic decision tree was developed in order to estimate the cost per QALY (in £2004) associated with each diagnostic method for assessment of the whole leg, and the arteries above and below the knee. Input parameters were obtained from a systematic review, other published sources and expert opinion. Lack of data to extrapolate the results to a longer period led to consideration of a 1-year time horizon, therefore discounting was not performed. RESULTS: DUS was the dominant strategy for the assessment of the whole leg, with a cost per QALY of £13,646. MRA appeared to be more cost-effective for assessment of the arteries above the knee, with a cost-per-QALY equal to £8628 with 2D-TOF MRA, and an incremental cost per additional QALY equal to £37,024 when 2D-TOF MRA was compared to DUS. For the knee comparison, results were uncertain, with DUS being more likely to be cost-effective at commonly accepted cost-per-QALY threshold values. CONCLUSIONS: The cost-effectiveness of the diagnostic tests was dependent on the area of the leg being assessed, with DUS being dominant for comparisons of the whole leg and cost-effective for below the knee comparisons, and MRA being cost-effective for above the knee assessments.

ECONOMIC EVALUATION OF DRUG ELUTING STENTS: COST-UTILITY ANALYSIS

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OBJECTIVES: Drug eluting stents (DES) are more effective than bare metal stents (BMS) in preventing angiographic and clinical restenosis. Within this study the cost-effectiveness of sirolimus (SES) and paclitaxel eluting stents (PES) compared to BMS was estimated for a UK setting with data from a meta-analysis. METHODS: A probabilistic Markov model was constructed. The model includes events observed in clinical trials (MI, revascularisation, CABG) and the health states heart failure and stroke. The meta-analysis data comprised 3-year follow-up data from randomized controlled trials. Probability distributions were fitted to all transition probability, cost and quality of life (QoL) parameters. Univariate sensitivity analysis was performed on several parameters. Effects and costs were discounted at 3%, the time horizon was 3 years and the number of stents was 1.27 per patient. A health care perspective was adopted. QoL data was obtained from published studies. RESULTS: The incremental costs for SES patients are €712 (95% CI: −2431 to 1713) and €1101 (95% CI: 150 to 1493) for PES patients. DES yield less QALYs than BMS with −0.0156 incremental QALYs (95% CI: −0.2652 to 0.2302) per SES patient and −0.0077 incremental QALYs (95% CI: −0.0777 to 0.06643) per PES patient compared to BMS patients. At a threshold level of Euros 50.000 per QALY the incremental net monetary benefit per SES patient is €6–1492 (95% CI: 1421.3–10766) and €16–1492 (95% CI: 5004–2273) per PES patient. At the same threshold level SES have a 15% probability of being cost-effective, PES have a probability of 17% of being cost-effective. CONCLUSIONS: Three-year follow up data show that DES are less effective than BMS when mortality is taken into account. Given the higher costs per DES patient, DES are dominated by BMS. Although DES show favourable results over BMS concerning revascularisation rates, they are not cost-effective.

ESTIMATION OF THE PRESENCE OF CARDIOVASCULAR EVENTS AND DIRECT COSTS ASSOCIATED WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN AN AMBULATORY SETTING

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OBJECTIVE: To determine the presence of cardiovascular events (CVEs) and their association with the main cardiovascular risk factors (CVRFs) and resource utilization parameters (direct costs) in subjects with chronic obstructive pulmonary disease (COPD) in different Spanish primary care centers. METHODS: A retrospective-multicenter design was adopted, with inclusion of the patients seen for COPD (ICPC:R95) by four primary care teams and two hospitals during 2004. The main measures were: age-sex, cardiovascular antecedents (ischemic heart disease [IHD], cerebrovascular accident, hypertension, dyslipidemia, diabetes mellitus, smoking, obesity) and other co-morbidities, clinical parameters (FEV1, BMI), resources utilization (complementary tests, pharmaceutical prescription, specialist referral, physician visits, hospitalizations and emergency-room visits, ambulatory care) and costs (semifixed and direct). A logistic regression analysis was made to fit the model. The costs were contrasted by covariance analysis (ANCOVA-marginal means). Data were analyzed using SPSS-v12 and p values of <0.05 were taken as the level of statistical significance. RESULTS: Nine-hundred patients were seen for COPD; mean age 70.4 ± 9.8 years and 83.5% were males. Around 19.0% (n = 171) had undergone a CVE (CI: 16.4–21.6%); 15.1% with IHD. The main CVEs were: 44.1%-hypertension, 36.2%-obesity, 31.9%-dyslipidemia, 23.6%-diabetes and 22.7%-smoking. The mean morbidity/patient/year was 10.1 ± 4.2 with CVEs vs. 8.3 ± 4.3 (p = 0.000); the clinical parameters studied (FEV1, BMI) showed no significance. The logistic model, corrected for age-sex and severity identified as associated factors: diabetes mellitus (OR = 2.1; CI = 1.3–3.4; p = 0.001) and dyslipidemia (OR = 1.7; CI = 1.1–2.7; p = 0.002). Quantification of unit cost/year/COPD was €7293.22 ± 3166.30 (70.5% pharmaceutical expenditure). The cost/year/patient-adjusted was €2847.22 (SE = 117.02) without CVEs, versus €2563.66 (SE = 244.05) with CVEs, p = NS. CONCLUSIONS: The presence of CVEs associated with COPD is high, causing an important co-morbidity, though without increasing the global costs of the disease. Diabetes mellitus and dyslipidemia are the main CVRFs associated; their prevention could improve the disease outcomes. Further studies are needed to confirm the consistency of these results.

COSTS ASSOCIATED WITH DRUG USE IN THE NON-ADHERENCE TO CHOLESTEROL MANAGEMENT GUIDELINES FOR PRIMARY PREVENTION OF CARDIOVASCULAR DISEASE IN AN ELDERLY POPULATION:THE ROTTERDAM STUDY

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OBJECTIVE: In The Netherlands, costs of statin use have recently increased sharply compared to costs of other drugs. Yet, several studies have established undertreatment and overtreat-
ment with statins, suggesting a suboptimal use of resources. We studied the drug costs associated with overtreatment and the costs to eliminate undertreatment with statins in an elderly population. METHODS: Overtreatment and undertreatment with statins were ascertained using current Dutch cholesterol management guidelines. Data were acquired from the Rotterdam Study. This is a population-based prospective cohort study, which started in 1990 with 7983 participants of at least 55 years of age. This analysis focused on primary prevention of cardiovascular disease (CVD) excluding subjects with a history of cardiovascular disease. To estimate patterns of medication use in daily practice pharmacy records were obtained. RESULTS: From the 3251 participants 464 (14%) were still alive on January 1st 2002, had no history of CVD and were undertreated. Of the 565 participants starting statin treatment 389 (69%) were overtreated according to the same guidelines. After projection on the general Dutch population, the absolute costs for overtreatment with statins in 2005 were estimated to be approximately 23 million Euros (Uncertainty limits (UL): 19-28 million Euro), while the cost to eliminate undertreatment were also 23 million Euros (UL: 19-28 million Euros). CONCLUSION: In conclusion, when considering only drug costs reallocation of resources used for statin treatment from those overtreated to those undertreated could lead to a more efficient use of resources.

THE ROLE OF ECONOMIC FACTORS IN THERAPEUTIC DECISION MAKING CONCERNING TREATMENT OF CORONARY ARTERY DISEASE IN POLAND
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OBJECTIVES: To identify key factors determining therapeutic decision making concerning coronary artery disease treatment in the GPs’ and specialists’ practices. To establish role of economic factors related. METHODS: A survey was conducted on the representative sample of Polish physicians (184 GPs and 63 specialists in the outpatient clinics) dealing with coronary artery disease (CAD) patients. Data were obtained with the aid of a specific questionnaire, including 6 items completed by doctor. RESULTS: Choosing the treatment for a CAD patient, 75% of the GPs and specialists have taken drugs’ efficacy into consideration at first. Safety of treatment (GPs 9.8% and specialists 12.7% respectively) and adherence to guidelines (9.2%; 9.5%) were rarely considered as main factors. One third of the GPs and specialists declared that unbearable drugs’ costs constituted the most frequent reason for treatment discontinuation. The adverse events (20.6% and 20.1%) and poli-therapy (20.6% and 19.6%) were the next reasons cited. Treatment with the lowest priced drugs (75%; 74%) and those medicines administered once a day (75%; 71%) were described as two best ways of compliance improvement. The most important factors leading to the change of treatment were insufficient efficacy (88%) and adverse events (81%). 70% of GPs and 74% of specialists declared, that every third patient talked about economic issues of treatment (co-payment, costs of diagnostic procedures and additional doctors’ consultations). Only 31.5% of the GPs and 41.3% of specialists indicated an influence on the quality of life among the top three most important factors determining a therapeutic decision. CONCLUSIONS: Factors determining therapeutic decisions in the CAD patients are quite similar among the GPs and specialists. Efficacy and safety of therapy represented factors commonly reported by the GPs as well as specialists. Unbearable cost of pharmacotherapy was considered as one of the main causes leading to treatment discontinuation and incompliance.

LIPID TESTING AMONG PATIENTS RECEIVING FIRST-EVER STATIN THERAPY IN UK GENERAL PRACTICES
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OBJECTIVE: Regular testing of total cholesterol (TC), high-density lipoprotein cholesterol (HDL-C) and triglycerides (TG) is important for effective lipid management. Our objective was to examine frequency of lipid testing and to assess predictors of lipid testing frequency in UK patients newly initiated on statins over a one year period. METHODS: This was a retrospective cohort study performed using the UK General Practice Research Database. Patients aged ≥35 years were included if they received their first ever statin between Jan-2000 and Dec-2004 and had at least one TC, HDL-C or TG test conducted in the one year period before statin initiation. Lipid tests performed after statin initiation were counted until the earliest of either one-year follow-up or statin discontinuation date plus 30 days. Poisson regression was used to assess pre-initiation factors associated with testing frequency for each lipid following statin initiation. RESULTS: 57,296 patients received at least one TC, HDL-C or TG at baseline and had one year of follow-up after statin initiation. On average, patients received 1.3 ± 1.0 TC tests. However, 22.7% patients did not receive a single TC test after starting on statins. The mean number of tests per patient for HDL-C and TG was 0.9 ± 1.0 but 44.3% and 39.1% of patients did not receive a single HDL-C and TG test, respectively. In the multivariate analysis, high cardiovascular risk [OR, 1.04; 95% CI, 1.01–1.07] and baseline TC ≥6.2 mmol/L [OR, 1.1; 95% CI, 1.06–1.18], compared with TC <5.0 mmol/L] were associated with TC testing frequency. CONCLUSION: Higher cardiovascular risk and higher baseline TC were associated with TC testing within the first year following statin initiation. Lack of TC testing in approximately 2 in 10 UK patients during that period and infrequent HDL-C and TG testing may prove as barriers towards effective lipid management.