OBJECTIVE: To evaluate the cost consequences of LMWH compared with unfractionated heparin in the treatment of unstable angina pectoris in Japan.

METHODS: A cost-consequence analysis was performed using decision-analytic modeling using evidence from the FRISC (Fragmin during Instability in Coronary Artery Disease) study group, Sweden. The decision tree models a patient presenting with unstable angina pectoris and facing the alternative treatments of LMWH or heparin as a basic model. Also, an advanced model was constructed with treatment options that reflected more realistic practice patterns in Japan. Cardiologists reviewed the model-development process to make the model relevant to the Japanese medical environment. The direct costs were obtained from pilot studies of DRGs in Japanese national hospitals.

RESULTS: In the basic model, we estimated a slight difference in expected costs between LMWH and heparin, favoring LMWH. However, this model was limited in two main areas: 1) difference in effects between LMHW and heparin were not statistically significant in the FRISC study; 2) opportunity costs such as monitoring for heparinization and treatment of bleeding with heparin were not included. When we incorporated realistic assumptions regarding the opportunity costs and Japan's treatment patterns, we found that the total medical costs for the LMWH group were much lower than for the heparin group even if the clinical effects for heparin and LMWH were set as equal. In this case, the estimated cost in the LMWH group was about $11,300 per patient and $19,600 for the heparin group assuming LMWH is properly used in clinical practice. This result was robust to a range of sensitivity analyses.

CONCLUSION: The use of LMWH for unstable angina pectoris in actual clinical practice where heparin monitoring can be avoided appears to be cost-saving in Japan. Considering the target population of 700,000 patients in Japan, the LMWH will have a great economic impact on society.

the Ravenna Local Health Unit. By crosschecking with the registry office and hospital database, gender, age and previous hospitalizations for cardiovascular diseases were also made available. All new users over 20 years old receiving a first prescription for diuretic, beta-blocker, calcium-channel-blocker, angiotensin-converting-enzyme inhibitor or angiotensin II antagonist between 01/01/1997 and 12/31/1997 were included. According to persistency of treatment, patients were classified as continuers (duration of therapy over 273 days with the initial antihypertensive class), switchers (duration of therapy over 273 days with a different class of antihypertensive than originally prescribed) and discontinuers (duration of therapy less than 273 days). The follow-up period lasted 365 days.

RESULTS: A total of 16,783 patients were enrolled, including 7409 men (44.1%) and 9374 women (55.9%) with an average age of 56.1 ± 18.3 years. Continuers and switchers represented 26.9% and 8.2% of enrolled subjects, respectively. The percentage of treatment interruptions (64.9%) ranged from 42.0% with angiotensin II antagonists to 69.8% with diuretics, and 53.8% of the population interrupted therapy after the first prescription. Age, co-morbidities and previous hospitalizations were higher for continuers and switchers than for discontinuers. The overall expenditure accounted for €1,076,053.55 of which 54.8% was for continuers, 19.8% for switchers and 25.4% for discontinuers. The percentage of the overall cost for discontinuers ranged from 14.8% with angiotensin II antagonists to 30.6% with calcium-channel blockers.

CONCLUSION: The high percentage of discontinuers translated into an expense incurred improperly. The high percentage of interruptions after the first prescription seemed to indicate that medication prescribed at enrollment was not appropriate.

PERSISTENCY OF TREATMENT IN PATIENTS INITIATED ON FIVE DIFFERENT CLASSES OF ANTIHYPERTENSIVE THERAPY: A PHARMACO-UTILIZATION AND PHARMACO-ECONOMIC ANALYSIS

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OBJECTIVE: To quantify and qualify the antihypertensive pharmaceutical expenditure incurred for the treatment of a population in the real world.

METHODS: An administrative database, collecting information on all purchased drugs, was used to perform a retrospective analysis for each health-assisted subject by

A POPULATION-BASED EUROPEAN STUDY OF PERSISTENCE IN NEWLY DIAGNOSED HYPERTENSIVE PATIENTS

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Patients' persistence with chronic treatment is a major component in the effectiveness assessment.

OBJECTIVE: To evaluate whether the initial choice of antihypertensive agent impacts newly diagnosed hypertensive patients' persistence with treatment at one year.

METHODS: The comparisons were between patients initially prescribed irbesartan, angiotensin II receptor antagonists (AIIRA) versus other antihypertensive drugs. We compared the proportion of patients who remained on the monotherapy initially prescribed, added to their initial therapy, switched to another therapy, or discontinued therapy at one year using chi-squared tests. Monotherapy

duration was analyzed using Kaplan Meier estimates. Statistical comparison of the survival curves was done with the Log-rank test. We pooled IMS Mediplus data (patient medical records completed by general practitioners) from Germany, France and the United Kingdom for analysis. Data was obtained for all irbesartan patients with at least one year of follow-up and from randomly selected samples of patients treated with either diuretics, beta blockers, calcium channel blockers, ACE inhibitors, or other AIIRA. Patients were newly diagnosed with hypertension between October 1, 1997 and November 30, 1998 and initiated antihypertensive treatment as monotherapy.

RESULTS: Patients included (2,416) were initiated on diuretics (422), beta blockers (441), calcium channel blockers (466), ACE inhibitors (333), losartan (188), irbesartan (380), other AIIRA (186). When irbesartan was prescribed, more patients remained on that therapy (60.8%) than with all other antihypertensives (44.2%, p = 0.001), or other AIIRAs (51.3%, p = 0.009). Compared to patients taking all other antihypertensives, fewer patients receiving irbesartan required adjunctive therapy (16.1% vs 25.3%, p = 0.001) or switched therapy (9.0% vs 13.6%, p = 0.013).

CONCLUSIONS: Irbesartan was superior compared to all antihypertensives in achieving persistence of initial therapy. By evaluating persistence rather than compliance, we captured both the patient's and the physician's role in determining the course of treatment.

A DECISION-ANALYSIS MODEL FOR ENHANCING MEDICATION ADHERENCE IN PATIENTS TAKING STATINS

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OBJECTIVE: Controlled clinical trials have demonstrated the positive impact of statin therapy on health outcomes in hyperlipidemic patients. The positive impact of adherence is seemingly intuitive and many programs have been designed to improve adherence. However, there are few studies analyzing the cost-effectiveness of medication-adherence interventions. This decision analysis model will examine the cost-effectiveness of programs designed to enhance medication adherence in patients taking statins. The model varies the medication-adherence rate and program costs to determine the differences in the expected outcome of three different types of intervention.

METHODS: Data from published clinical and pharmacoeconomic studies were entered into a decision analysis model. A Monte Carlo simulation using 10,000 trials was used with beta distributions for the assumptive variables. The baseline adherence rate was set at 67% and the cardiovascular event rate at 1.5%. Behavioral (B) type interventions were assumed to increase adherence by

8.61%, Educational (E) interventions by 11.22% and Combined (C) B and E by 17.04%. Program costs were estimated as follows: B = $200, E = $100, and C = $225 per patient. Cardiovascular and serious medication-related events were also used as outcomes. The cost-per-patient-per-event avoided was calculated. ANOVA was used to test for differences among intervention types.

RESULTS: The results showed that the interventions increased the number of events avoided in the first year by 0.04 (95% CI = $-0.04, 0.12$) for B, by 0.06 (95% CI = $-0.02, 0.14$) for E and by 0.08 (95% CI = $0.02, 0.14$) for C. The cost-per-event-per-patient avoided in the first year of treatment was B = $6,038, E = $2,568 and C = $3,839. There was a statistical difference among all intervention types with respect to cost of events avoided.

CONCLUSIONS: There was no difference in the number of events avoided in the first year of statin treatment with respect to intervention type. While C interventions yielded more events avoided, E interventions appear to be the most cost-effective. More study on the cost-effectiveness of medication adherence programs is required.

DEVELOPMENT OF TWO INSTRUMENTS: ONE TO MEASURE EDUCATIONAL MATERIAL ACCEPTABILITY AND ONE TO MEASURE KNOWLEDGE GAINED IN PATIENTS WITH HEART FAILURE

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Patients with heart failure suffer from poor health outcomes due to multiple co-morbidity requiring multiple medications. Patients who misunderstand their diagnosis and treatment plan may use their medication suboptimally. Providing knowledge through education is one mechanism that can help patients improve medication compliance.

OBJECTIVES: To develop and establish measurement properties of two distinct instruments that can be used in patients with heart failure (HF) to measure acceptability of educational materials and subsequent knowledge gained following an educational intervention.

METHODS: Using an expert panel, we developed minimal criteria required to educate patients with HF. Subsequently, we developed and tested two questionnaires. The first measure, which we refer to as a measure of educational material acceptability (EMA) was developed to help us differentiate between booklets designed to educate patients with HF so as to select which booklets were most acceptable to the patient. The second measure, which we refer to as the measure of knowledge acquisition (MKA), was developed to help us evaluate the impact of our educational intervention on knowledge. MKA