USING ELECTRONIC MEDICAL RECORDS (EMRs) TO ASSESS ANTICOAGULATION STATUS ACCORDING TO STROKE RISK IN PATIENTS WITH ATRIAL FIBRILLATION IN AMBULATORY CARE

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1GE HealthCare LTD, Bucks, England, 2GE HealthCare LTD, Bucks, Gile Buds, England, 3Eloss Consulting, Cohasset, MA, USA, 4GE Healthcare, Princeton, Nj, USA, 5GE Medical Quality Improvement Consortium (MQIC) database (February 2009) containing electronic medical records (EMRs) data on >1 million patients in the U.S. Eligible patients were those with a diagnosis of AF, ≥40 years at AF diagnosis, and with no use of warfarin or antiplatelet agents at anytime prior to AF diagnosis. Ineligible patients were those who might have other reasons, such as cancer or orthopedic surgery, to be hypercoagulable (i.e. other justifications for different anticoagulant use or INR ranges), or those already on antplatelet agents or warfarin prior to AF diagnosis. CHADS2, stroke risk scores were assigned on the basis of conditions (congestive heart failure, hypertension, diabetes mellitus, stroke/TIA). The last INR on record was captured for all eligible patients. RESULTS: From 11,196,881 total patients, 58,848 patients with AF met all selection criteria. Patients at high risk of stroke (CHADS2 ≥ 2) comprised 99% (18,214) of the total patients. Among the high risk patients, 24,953 (43%) were on warfarin, 8,541 (15%) antplatelet agents, and 24,720 (42%) neither. Of the 24,953 patients on warfarin, the last INR on record was in the suboptimal range (<2 in 13,420 (53%), suboptimal range (≥3) in 2,969 (12%), and in optimal range (2–3) in 878 (35%). CONCLUSIONS: Analysis of a large, nationally representative EMR database suggests that the majority of AF patients at increased risk of stroke are receiving suboptimal anticoagulation.

HEART FAILURE IN OLDER PEOPLE: A STUDY OF FACTORS THAT LEAD TO HOSPITALISATION

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OBJECTIVES: Heart failure is a frequent cause of hospitalisation among older patients. This study examines the principal factors leading to acute decompensation of heart failure leading to hospital admission and considers whether these factors are similar in older and younger people. METHODS: A retrospective study of hospital admissions for heart failure in people ≥75 from a community hospital in Manchester, UK. RESULTS: Of the 497 admissions, 367 (74%) were from patients ≥75. Of these 367 patients, 129 (35%) were admitted for an acute decompensation and 75 (21%) for stable heart failure. Other factors (12 (3%)) were receiving NSAIDS on admission. CONCLUSIONS: The main factors that contributed most to heart failure decompensation. Main factors leading to hospitalisation included: volume over load if patient had all signs of hypervolaemia (pedal oedema, elevated jugular venous pressure, pulmonary crepitations and dilutional hyponatraemia), tachyarrhythmia if heart rate was >150 beats per minute, or uncontrolled hypertension if systolic blood pressure >180mmHg.

ANTICOAGULATION STATUS ACCORDING TO STROKE RISK IN AMBULATORY CARE PATIENTS WITH ATRIAL FIBRILLATION

OBJECTIVES: To assess the prevalence and adequacy of warfarin use in patients with atrial fibrillation (AF) according to stroke risk, as assessed by CHADS2, scores, in a population representative patient sample. METHODS: The data source was GE’s Medical Quality Improvement Consortium (MQIC) database (February 2009) containing electronic medical records (EMRs) data on >1 million patients in the U.S. Eligible patients were those with a diagnosis of AF, ≥40 years at AF diagnosis, and with no use of warfarin or antiplatelet agents at anytime prior to AF diagnosis. Ineligible patients were those who might have other reasons, such as cancer or orthopedic surgery, to be hypercoagulable (i.e. other justifications for different anticoagulant use or INR ranges), or those already on antplatelet agents or warfarin prior to AF diagnosis. CHADS2, stroke risk scores were assigned on the basis of conditions (congestive heart failure, hypertension, diabetes mellitus, stroke/TIA). The last INR on record was captured for all eligible patients. RESULTS: From 11,196,881 total patients, 58,848 patients with AF met all selection criteria. Patients at high risk of stroke (CHADS2 ≥ 2) comprised 99% (18,214) of the total patients. Among the high risk patients, 24,953 (43%) were on warfarin, 8,541 (15%) antplatelet agents, and 24,720 (42%) neither. Of the 24,953 patients on warfarin, the last INR on record was in the suboptimal range (<2 in 13,420 (53%), suboptimal range (≥3) in 2,969 (12%), and in optimal range (2–3) in 878 (35%). CONCLUSIONS: Analysis of a large, nationally representative EMR database suggests that the majority of AF patients at increased risk of stroke are receiving suboptimal anticoagulation.

THE QUANTIFICATION OF THE RELATIONSHIP BETWEEN HIGH DENSITY LIPOPROTEIN CHOLESTEROL (HDL-C) AND ALL-CAUSE MORTALITY

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OBJECTIVES: Health benefits of low-density lipoprotein cholesterol (LDL-C) at recommended levels are well known; benefits of HDL-C at recommended levels are less well documented. This study assesses and replicates the quantification of the relationship between HDL-C and all-cause mortality while aligning relative importance to LDL-C. METHODS: A comprehensive analyses of available epidemiological studies including HDL-C and all-cause mortality as an endpoint were included in a meta-regression. That meta-regression was independently validated with a longitudinal analysis of an Australian epidemiological database (General Practitioner Research Network) 1999–2004. While statistical association is important, demonstration that modifications via intervention to the clinical measure (HDL-C) effect change in the population was the endpoint in this study. RESULTS: The one- and two-year relative risks for medical management were 0.934 and 0.879 from the ARCHER trial using protected carotid stenting. The Chi-square statistic from the log rank test of two-year survival curves was 2.26, p = 0.13 that medical management produces different results from carotid stenting. As long as the relative risk is greater than 2.25 the p value is >0.05. CONCLUSIONS: Recent carotid stenting patients medically managed populations, benefits of stroke-free survival and mortality data for these patients if the relative risk compared to a known population can be estimated. Since the ARCHER trial found no ipsilateral strokes in its third year, this two-year analysis may overestimate the relative risk needed to justify carotid stenting.
BUDGET IMPACT OF BIVALIRUDIN IN STEMI PATIENTS UNDERGOING PRIMARY PERCUTANEOUS CORONARY INTERVENTION (PCI) IN UK HOSPITALS
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OBJECTIVES: Approximately 3900 PPCI were performed in the UK in 2007. This number is expected to double in the next 5 years post the 2008 NIAP report. New antithrombotic therapies have the potential to improve clinical outcomes and decrease costs. The HORIZONS-AMI study of bivalirudin demonstrated reduced clinical event rates (mortality and bleeding) compared to a heparin and GPI (HEP+GPI) regimen. The potential economic value of implementing bivalirudin in the PCI setting is evaluated in this analysis from the UK hospital perspective. METHODS: A budget impact model was developed to compare treatment of STEMI patients undergoing PCI with either bivalirudin or HEP+GPI. Clinical data for the model was derived from the HORIZONS trial, and included at least 30-day event rates for major complications (major and minor bleeding as defined by trial protocol, Q-wave myocardial infarction, repeat PCI and coronary artery bypass graft (CABG)). Economic data were derived from the medical literature, including clinical outcomes as well as ward costs (both regular and ICU/CCU) and pharmacological costs. Addi- tives from the literature were resource use data from the ADONIS study. The model was developed to evaluate the impact of bivalirudin in unstable angina (UA)/non-ST-elevated myo- cardial infarction (NSTEMI) patients undergoing PCI in a German hospital. Clinical data for the model were derived from the ACUITY trial and included 30-day event rates for major complications (major and minor bleeding as defined by trial protocol, Q-wave myocardial infarction, repeat PCI and coronary artery bypass graft (CABG)).
RESULTS: For UA/NSTEMI patients, overall average per procedure cost was £5347 with heparin plus GPI and €4882 with bivalirudin. In 100 PCI patients, bivalirudin use would result in 3 fewer major bleeding events (3.1%) and 11 fewer minor bleeding events (10.7%). Total hospital costs comparing 100% heparin-based strategy to 100% heparin plus GPI in a German hospital setting. Clinical data for the model were derived from the ACUITY trial and included 30-day event rates for major complications (major and minor bleeding as defined by trial protocol, Q-wave myocardial infarction, repeat PCI and coronary artery bypass graft (CABG)). Economic data were derived from the medical literature, including clinical outcomes as well as ward costs (both regular and ICU/CCU) and pharmacological costs. Addi- tives from the literature were resource use data from the ADONIS study. The model was developed to evaluate the impact of bivalirudin in unstable angina (UA)/non-ST-elevated myo- cardial infarction (NSTEMI) patients undergoing PCI in a German hospital. Clinical data for the model were derived from the ACUITY trial and included 30-day event rates for major complications (major and minor bleeding as defined by trial protocol, Q-wave myocardial infarction, repeat PCI and coronary artery bypass graft (CABG)).
CONCLUSIONS: The potential economic value of implementing bivalirudin in the PCI setting is evaluated in this analysis from the UK hospital perspective. A bivalirudin-based strategy was associated with favorable clinical and economic outcomes when compared with heparin plus GPI in a German hospital setting.

THE POTENTIAL ECONOMIC IMPACT OF RECONFIGURING TIA CARE IN ITALY
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OBJECTIVES: Due to a lack of awareness of the risk of transient ischemic attack (TIA) symptoms, many patients may not immediately seek medical help, creating a delay in access to treatment. The UK EXPRESS study by Rothwell et al. (Lancet 2007;370:1432– 42) demonstrated that greater focus on effectively managing TIA could have a significant impact on subsequent stroke rates. With nearly 200,000 strokes occurring in Italy each year, we wanted to examine how far the €1,002,913, in phase 2 of the EXPRESS study could affect rates of stroke, and explore the financial implications of such a shift in care pathway. METHODS: We developed an economic model to estimate the costs and savings associated with establishing a rapid assessment and treatment clinic for patients with suspected TIA in Italy, in line with phase 2 of the EXPRESS study. We used a population of 1,000,000 people diagnosed with an annual incidence of TIA of 0.058%. Current management was based on ESO guidelines and common clinical practice. We included direct costs associated with care (medications, diagnostics and staff—where data were unavailable, UK converted costs were used), and modelled the impact of changing management over three years. RESULTS: For a population of 1,000,000, changing the pathway of care to ensure rapid assessment and treatment for TIA patients would result in 180 future stroke events being avoided over three years, and savings associated with the avoidance of acute stroke management would offset the costs of establishing rapid assessment and treatment clinics for patients experiencing TIA.

RECONFIGURING TIA CARE PATHWAYS IN HUNGARY: AVOIDING RECURRENT STROKE
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OBJECTIVES: Due to lack of awareness of the risk of transient ischemic attack (TIA) symptoms, many patients may not immediately seek medical help, creating a delay in access to treatment. The UK EXPRESS study by Rothwell et al. (Lancet 2007;370:1432–42) demonstrated that greater focus on effectively managing TIA could have a significant impact on subsequent stroke rates. With nearly 200,000 strokes occurring in Italy each year, we wanted to examine how far the €1,002,913, in phase 2 of the EXPRESS study could affect rates of stroke, and explore the financial implications of such a shift in care pathway. METHODS: We developed an economic model to estimate the costs and savings associated with establishing a rapid assessment and treatment clinic for patients with suspected TIA in Hungary, in line with phase 2 of the EXPRESS study. We used a population of 1,000,000, diagnosed with an annual incidence of TIA of 0.058%. Current management was based on ESO guidelines and common clinical practice. We included direct costs associated with care (medications, diagnostics and staff—where data were unavailable, UK converted costs were used), and modelled the impact of changing management over a three-year time horizon. RESULTS: For a population of 1,000,000, changing...