COMPARATIVE EFFECTIVENESS REVIEW: DRUG-ELUTING STENTS VERSUS BARE-METAL STENTS FOR ACUTE MYOCARDIAL INFARCTION

Abstracts

IMPACT OF A SEMINAL STUDY ON PRACTICE PATTERNS: STATIN USE BEFORE AND AFTER THE JUPITER STUDY

OBJECTIVES: To estimate the relative impact of drug-eluting stents (DES) versus bare-metal stents (BMS) on death, myocardial infarction (MI), target vessel revascularization (TVR), and stent thrombosis (ST) in patients with ST-elevation acute myocardial infarction (STEMI) by performing comprehensive meta-analyses of randomized controlled trials (RCTs) and observational studies. METHODS: We searched Ovid-Medline, Cochrane Library, and conference proceedings for studies comparing outcomes between DES and BMS among STEMI patients presented through September 2009. The quality of studies was evaluated by using the Cochrane’s risk of bias for RCTs and MINORS (Methodological Index for Non-Randomized Studies) for observational studies. The relative risk (RR) using the inverse variance random-effects method for each study outcome was calculated. RCT and observational data were analyzed separately. To assess heterogeneity of RR across trials, we used the Cochrane-Q statistic and I² statistic. Subgroup analyses were performed by length of follow-up and meta-regression was used to evaluate predictors of outcomes by stent type, funnel plots, the Egger test, and the Begg test were used to assess publication bias. To assess the quality of the evidence, we used GRADEpro. RESULTS: Fifteen RCTs were identified (N = 7,654, kappa-statistic = 0.90). Compared with BMS, DES significantly reduced TVR (RR: 0.48; 95% confidence interval [CI]: 0.41–0.56) and MI (RR: 0.70; 95% CI: 0.60–0.96), without increasing death (RR: 0.88; 95% CI: 0.70–1.11) and ST (RR: 0.93; 95% CI: 0.72–1.21). Among 35 observational studies (N = 44,849), DES significantly reduced death (RR: 0.85; 95% CI: 0.79–0.91) and TVR (RR: 0.61; 95% CI: 0.48–0.77). MI and ST were significantly lower in the DES group within 1-year follow-up, but there were no differences between 2-year follow-ups. There was no evidence of statistical heterogeneity and publication bias. Among RCTs, the quality of the evidence of TVR was assessed as “High”, death and MI as “Moderate”, and ST as “Low”. The quality of the evidence from observational studies was assessed as “very low” or “low”. CONCLUSIONS: These data in aggregate suggest that using DES in STEMI patients are safe and efficacious but there are differences between RCT and observational data comparing DES and BMS.

BELIEFS ABOUT ANTIHYPERTENSIVE MEDICATIONS IN PRIMARY CARE PATIENTS: VALIDATION OF BELIEFS ABOUT MEDICINES QUESTIONNAIRE (BMQ) IN COLOMBIA

OBJECTIVES: Determine the factor structure of the Beliefs about Medicines Questionnaire (BMQ) and examine the association of medication beliefs with medication adherence. METHODS: Seventeen patients who used antihypertensive drugs participated in semi-standardized interviews. Interviews were recorded and reviewed by two investigators. The medication adherence was measured using the method of count of tablets. An exploratory factor analysis was performed. Multiple linear regression was used to determine whether beliefs about medications were significantly associated with medication adherence. RESULTS: Factor analysis resulted in a two solution, explaining 46.7% of cumulative variance among respondents. The factors were labeled: Overuse (Concerns about the way doctors use medications) and Harm (Beliefs that medications are harmful). Cronbach’s alpha coefficient was 0.71. Beliefs about medications (Overuse and Harm) were significantly associated with non-adherence to antihypertensive drugs. CONCLUSIONS: The factorial structure of BMQ was similar than previously reported in other medical conditions. Also these findings suggest that in addition to telling patients how to take their medications, primary care physicians should educate patients about short- and long-term effects of the medication and all possible therapeutic alternatives to improve the adherence to antihypertensive medication.

DERIVING DOCTORS’ PRESCRIBING PATTERNS FROM CLAIMS DATA: AN APPLICATION TO ANTICOAGULANT USE IN PATIENTS WITH NON-VALVULAR ATRIAL FIBRILLATION

OBJECTIVES: Doctors’ practice and prescribing patterns are based on many factors, some of which are not observable. We derived doctors’ prescribing patterns from U.S. claims data to show how it might be related with decisions on anticoagulant use for venous thromboembolism (VTE) treatment. METHODS: Based on U.S. claims data, we assigned doctors’ IDs based on the physician who treated the enrolee for the longest period of time, excluding doctors competing any emergency room visits, inpatient, laboratory, and radiology services. Physician prescribing patterns were then calculated from prescription drug records. Patients were grouped as compliant and non-compliant to warfarin. RESULTS: We identified the doctors’ prescribing pattern with the percentage of time they prescribed warfarin, injectable anticoagulants, antplatelet, anti-arrhythmics, rate control drugs and other drugs. We showed that patients were more likely to be compliant to warfarin if their physician’s prescribing pattern favored warfarin. Patients were less compliant if their physician’s prescribing pattern favored injectable anticoagulation or antplatelet. There were no effects on compliance if doctors’ prescribing patterns favored anti-arrhythmics or rate control drugs. CONCLUSIONS: Doctors’ prescribing patterns are important factors for patient compliance. Therefore, failing to control for these patterns in compliance models might lead to omitted variable bias.

STATIN USE BEFORE AND AFTER CABG PROCEDURE

OBJECTIVES: The impact of the JUPITER study using a nationally-representative Electronic Medical Record (EMR) database. METHODS: The EMR database reviewed was the Medical Quality Improvement Consortium (MQIC) database from GE. This database contains EMR data collected from over 11,000 ambulatory providers in the United States and includes over 12 million patients as of April, 2009. Records were reviewed for the total database before and four months after. Among adults ≥ 18 years of age, new statin usage (4 months before and after) and switches involving rosuvastatin, the statin in the JUPITER study, were counted. RESULTS: Of over 9.4 million adults, over 1.2 million (13%) are recorded as taking a statin. The proportion of statin usage remained consistent before and after 4 months with JUPITER with percent of use among the patients as follows: rosuvastatin (11%), simvastatin (32%), atorvastatin (49%), others approved statins (7%), and all others (3%). CONCLUSIONS: Although JUPITER is already considered a seminal study by many, it has not yet impacted clinical practice, suggesting a time lag in getting evidence into practice. This EMR database provides a valuable data source to monitor real-time, real-world prescribing practices, and will permit further exploration of relevant patient characteristics, such as CRP and LDL levels, and outcomes that is not possible using administrative datasets.

NOVEL QUALITY ASSURANCE ANALYSIS REVEALS PREVIOUSLY UNDETECTED DEFICIENCIES IN A POINT OF CARE DEVICE THAT MEASURES THE INTERNATIONAL NORMALIZED RATIO

OBJECTIVES: Measures used to make clinical decisions are assessed by quality assurance (QA) programs. Our group’s research suggests standard QA analyses can fail to provide relevant clinical information and may be misleading. We compared a novel clinically-based QA analysis to previously conducted standard QA analysis of INR measurements by point-of-care (POC) devices in our anticoagulation clinic. METHODS: Previously analyzed QA data, collected January, 2006 through June, 2008 were obtained. Two INR samples were obtained from each patient at the same anticoagulation clinic visit: one venous sample analyzed by our core laboratory (considered the