adjusted analyses according to type of bisphosphonate showed increased mortality after stroke among new users of etidronate (MRR 1.45, 95%CI: 1.05; 2.01).

Conclusions: Overall, we found no evidence that preadmission bisphosphonate use increases 30-day mortality following AIS, ICH, or SAH.

37. Covariate Balance Assessment, Model Selection and Bias in Propensity Score Matching: A Simulation Study

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Background: In building propensity score (PS) model, inclusion of interaction/square terms in addition to the main terms and the use of balance measures has been suggested. However, the impact of assessing balance of several sets of covariates and their interactions/squares on bias/precision is not well studied.

Objectives: The aim of this study was to investigate the impact of balance assessment with respect to different covariates on bias of the estimated treatment effect and PS model selection.

Methods: Simulation study was conducted using binary treatment and outcome data, and several covariates: confounding terms, risk factors (RFs; only related to outcome), instrumental variables (IVs; only related to treatment), and their interactions/squares. Treatment effects (risk ratios) were estimated using PS matching, and covariate balance was assessed using standardized difference. PS model selection was based on the balance achieved on different sets of covariates, and their interactions/squares. The types of covariates included in balance assessment were compared with respect to bias/precision of the effect estimate as well as the PS model selected.

Results: PS model selection based on balance of confounding variables and RFs provided the least biased estimates. Inclusion of interactions/squares in balance calculation improved the precision of the estimate without increasing the bias. Although PS model selection based on balance calculation on all covariates and on confounding terms as well as IVs resulted in similar estimates in the absence of unmeasured confounding, inclusion of interactions/squares in balance calculation increased the bias (up to 13.6%) while reducing the precision. When PS model was selected based on the balance achieved only on confounding terms, the PS model containing only confounding terms was often selected followed by the PS model with confounding terms and RFs.

Conclusions: In PS model selection based on covariate balance, the choice of covariates and interaction/squares for balance calculation has substantial impact on bias/precision of the treatment effect. Researchers should consider PS model selection based on the balance achieved on confounding variables, RFs and important interactions among confounders and RFs.

38. Comparison of High Dimensional Confounder Summary Scores in Comparative Healthcare Database Studies of Newly Marketed Medications

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Background: High-dimensional propensity scores (hdPS) facilitate adjustment for many potential confounders but can be limited in comparative studies of new medications shortly after their market entry owing to the small number users and even fewer number experiencing the outcome(s) of interest. High-dimensional disease risk scores (hdDRS) developed in historical cohorts may overcome this problem while still permitting adjustment for many potential confounders.

Objectives: The aim of this study was to compare confounding adjustment by hdPS and historically developed hdDRS in three comparative studies of newly marketed medications: dabigatran versus warfarin on major hemorrhage and on death; and coxibs versus non-selective non-steroidal anti-inflammatory drugs on gastrointestinal bleeds

Methods: In each example, we constructed a concurrent cohort of new and comparator drug initiators using US claims databases. In historical cohorts of comparator