The comparative cardiovascular safety of smoking cessation pharmacotherapies

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Introduction and Aims: Clinical guidelines recommend smoking cessation pharmacotherapies be offered to all smokers who want to quit. In the interest of minimising risk, prescribers need evidence on how these medicines compare in terms of cardiovascular safety. This study compared the risk of major adverse cardiovascular events (MACE) among individuals initiating varenicline, nicotine replacement therapy (NRT) patches and bupropion.

Design and Methods: A population-based cohort study using linked pharmaceutical dispensing, hospital admissions and death data for residents of New South Wales. Individuals initiating prescription varenicline, NRT patches, and bupropion between July 2002 and March 2017 were included in three pairwise comparisons. The primary outcome was MACE, defined as a composite of acute coronary syndrome (ACS), stroke and cardiovascular death. Secondary outcomes were the individual components of MACE. We used Cox proportional hazard models with inverse probability of treatment weighting by high dimensional propensity scores to estimate adjusted hazard ratios (HR) with 95% confidence intervals (CIs).

Results: Our comparison of varenicline (N = 123,660) and NRT patches (N = 92,957) showed no difference in the risk of MACE (HR 0.87, 95% CI 0.72, 1.06), nor ACS or stroke. However, we found a reduced risk of cardiovascular death among varenicline initiators (HR 0.49, 95% CI 0.30, 0.78) relative to NRT patch initiators. The results of our comparisons involving bupropion were inconclusive due to sparse data.

Discussions and Conclusions: Varenicline, the most efficacious smoking cessation pharmacotherapy, can be prescribed in preference to NRT without fear of increasing patients' risk of major cardiovascular events.

Disclosure of Interest Statement:

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