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DIFFERENCE-IN-DIFFERENCES ANALYSIS OF THE IMPACT OF ORAL ANTICOAGULANT PRESCRIBING ON INCIDENCE OF ATRIAL-FIBRILLATION-RELATED STROKE

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OBJECTIVES: Assess whether the change in the rates of use of direct oral anticoagulants (DOACs) and warfarin has a relation atrial fibrillation (AF)-related stroke incidence.
METHODS: Data on AF-related stroke cases (stroke as primary diagnosis, AF as secondary diagnosis) were obtained from Hospital Episode Statistics data (copyright NHS Digital 2018), prescribing data from the electronic Prescribing and Costing Tool, and AF detection and treatment data from the Quality and Outcomes Framework data. A difference-in-differences (DiD) analysis was performed with Poisson regression to compare the impact of DOAC use on stroke incidence in 2011–2013 versus 2015–2017, across all clinical commissioning groups (CCGs) in England and adjusted for AF prevalence. **RESULTS:** When the CCGs were ranked from low to high by the number of strokes, the number of DOAC prescriptions increased accordingly, but this change was probably due the size of the CCG population. A trend was seen towards a reduction in adjusted AF-related stroke incidence in relation to increased oral anticoagulant prescribing across England. Despite not reaching significance overall, within CCGs that used more DOACs than warfarin reductions were significant for all stroke (risk ratio 0.97, 95% CI 0.95–0.98) and ischaemic stroke (risk ratio 0.96, 95% CI 0.94–0.98). **CONCLUSIONS:** DOAC prescribing rose substantially throughout England in the period 2011–2017. This DiD analysis demonstrates that although the efficacy of DOACs and warfarin for the prevention of stroke are considered to be similar, the higher clinical use of DOACs appears to offer better patient outcomes in the real-world setting. Given the ageing population, which is likely to lead to an increase in AF, and thereby stroke, further analysis seems warranted to investigate the potential for improved benefits from increased DOAC prescribing at the population level in the real-world clinical setting.

292 words