OBJECTIVES: Clinical trials comparing rivaroxaban or dabigatran to warfarin showed that NOACs are non-inferior in efficacy and superior in safety. However, the cost-effectiveness of NOACs compared to warfarin has not been thoroughly assessed. This study aimed to evaluate the cost-effectiveness of NOACs in the United States for the prevention of thromboembolic events in patients with non-valvular atrial fibrillation (NVAF).

METHODS: We conducted a cost-effectiveness analysis using a Markov model. Four different NOACs (rivaroxaban, apixaban, edoxaban, and dabigatran) were compared to warfarin. The model considered the incidence of stroke/systemic embolism, intracranial hemorrhage, and major bleeding. The model also incorporated the cost of drug therapy, patient monitoring, and the healthcare system. Treatment failure to NOACs was assumed to be followed by warfarin treatment. Costs were calculated in 2012 US dollars. A base case analysis was performed using a 3% discount rate for both costs and effects. Sensitivity analyses were conducted to determine the robustness of the results.

RESULTS: The total lifetime cost per patient was lower for rivaroxaban ($162,000), edoxaban ($170,000), and dabigatran ($177,000) compared to warfarin ($185,000). The incremental cost-effectiveness ratios were $19,800 per additional quality-adjusted life-year (QALY) for rivaroxaban, $23,000 per QALY for edoxaban, and $32,000 per QALY for dabigatran compared to warfarin. Sensitivity analyses showed that the results were robust to changes in the discount rate, the costs of drugs and monitoring, and the effectiveness of warfarin.

CONCLUSIONS: NOACs are more cost-effective than warfarin for the prevention of thromboembolic events in patients with NVAF. Rivaroxaban, edoxaban, and dabigatran are associated with a lower cost per QALY compared to warfarin. These results support the use of NOACs in clinical practice.