AF Anticoagulation - DOACs Breaking The Bank?

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**Introduction**: Anticoagulation is proven to reduce mortality in AF patients at high risk of stroke. Direct oral anticoagulant (DOAC) use has increased as they are now recommended by the European Society of Cardiology in preference to vitamin K antagonists (VKA) in eligible patients. However, DOACs are more expensive than VKAs. This is particularly relevant in the context of publicly funded healthcare systems, such as The National Health Service in the UK. In this setting, we must safely and efficiently treat a large cohort with limited resources. Due to increasing usage, DOAC expenditure across the Surrey and Sussex area increased by 63% between 2015/16 and 2016/17, with expenditure predicted to account for 20% of the local prescribing budget within five years. All four DOACs are approved for AF by the National Institute of Clinical Excellence although there are no trials directly comparing the agents. In 2016 Daiichi-Sankyo, who manufacture edoxaban, agreed a significantly lower (>25%) cost to the NHS than competitor agents by reducing drug tariff and offering a long-term rebate. Following evaluation of clinical evidence, edoxaban was recommended as the first-line DOAC for the majority in the locality. For those at highest risk of GI bleed, or with excellent renal function, or where an antidote may be desirable, dabigatran was preferred. An innovative selection tool was devised by a cardiologist to aid prescribing (figure).

**Methods**: From 2017 prescribers were requested to follow this guidance and avoid prescribing other DOACs for AF. Importantly, cost savings were reinvested to fund patients on a DOAC to have an annual review. The intention was to improve safety and outcomes by checking compliance, dosing and reducing bleeding risk (hypertension, alcohol advice, medication review). A pilot scheme in a GP surgery investigated switching existing DOAC prescriptions to align with the guidance. It demonstrated that this is both feasible and safe.

**Result**: From October 2017 to September 2018, 1221 patients with diagnosis of AF were initiated on a DOAC and 1426 patients received an annual anticoagulation review across the region. Within a year, edoxaban prescribing increased from 1% to 23% of DOAC prescriptions. In late 2018, 38% of DOAC patients were taking edoxaban. Total cost savings in the region were £243,527 with the average DOAC spend per patient falling 11%. Adopting the guidance across the region, and switching existing prescriptions where indicated, would save in excess of £10m Vs. current costs. As DOAC use grows, larger cost savings are likely.

**Conclusion**: Previous trends were financially unsustainable and created inequalities as some clinicians had chosen warfarin based on cost. This novel intervention demonstrates that with limited resource, more patients can be treated with edoxaban than with other DOACs and inequalities can be reduced. Savings can be used to develop anticoagulation safety systems and improve compliance.