

Frequency of INR Testing in Medicare Beneficiaries at High Risk for Stroke

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BACKGROUND

Stroke risk is elevated in a number of populations. Anticoagulation with adjusted dose warfarin (ADW) is the standard of care for patients with atrial fibrillation (AF)¹ and mechanical heart valves (MHV).² Since stroke risk rises with age and co-morbidity, Medicare patients with AF and MHV are at particular risk of stroke, as well as for hemorrhage, a complication related to excessive levels of warfarin.

International Normalized Ratio (INR) is the frequently administered diagnostic test indicated for monitoring and adjusting warfarin dosage. Most INRs are performed in clinical laboratories making case management administratively complex since the physician must reach out to the patient after reviewing the INR results. Third-party payers generally reimburse for the INR test, but do not reimburse the physician for reviewing test results and communicating warfarin adjustments.

Others have reported non-adherence to the standard of care among inpatients with AF.³ Since the majority of ADW anticoagulation occurs outside the hospital, review of ambulatory data can gauge adherence in the most common setting of care.

OBJECTIVES

Anticoagulation with warfarin for stroke prevention requires careful management to avoid hemorrhage or thrombosis. We evaluated the frequency of INR testing in two high-risk Medicare populations who were likely to receive adjusted-dose warfarin: 1) patients diagnosed with AF, and 2) patients with MHV.

METHODS

We analyzed the 2001 Physician Supplier Procedure Summary Master Files (PSPSMF) database, a 5% sample of procedure-specific claims for all physician/supplier services rendered to Medicare beneficiaries. We identified patients with AF and MHV based on any-listed ICD-9-CM diagnosis code of 427.31 and V43.3, respectively. For each cohort, we searched for claims billed under Current Procedural Terminology (CPT) code 85610 – prothrombin testing. We compared prevalence and frequency of INR testing for each cohort to expected standards of care.

RESULTS

We identified 141,757 patients with AF and 10,055 patients with MHV, who would yield projected national estimates of 2.8 million and 200,000 patients, respectively. Sixty percent of AF patients and 43% of MHV patients did not have a single INR claim. Of AF patients who had at least one INR test claim, 41% were tested fewer than 6 times per year, and 59% were tested 10 or fewer times per year. For MHV patients, 31% were tested fewer than 6 times per year, and 47% were tested 10 or fewer times per year. The adherence to testing standards (no INRs vs. 1 or more INRs) in the AF and MHV populations was statistically different (chi-square, p-value < 0.01). The distributions of number of INR tests per patient per year in AF and MHV populations were highly correlated (correlation = 0.9666, p<0.01).

Figure 1. AF and MHV Adherence

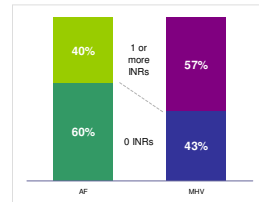


Figure 2. AF INR Distribution

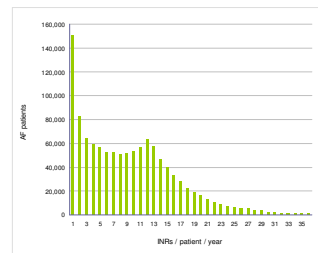


Figure 4. AF Frequency Clusters

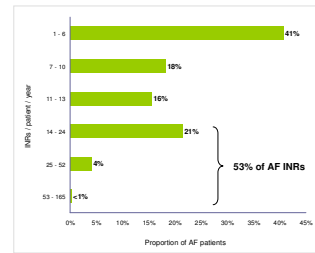


Figure 3. MHV INR Distribution

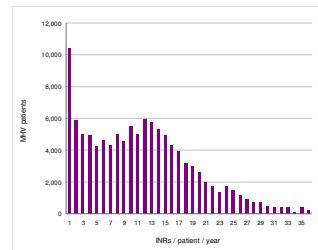
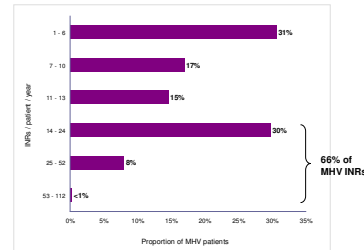


Figure 5. MHV Frequency Clusters



CONCLUSIONS

Medicare claims histories reveal that clinical practice patterns may not adhere to accepted standards of care for the prevention of stroke in AF and MHV. Third-party payment policies, provider behavior, lack of patient awareness, and other factors may contribute to poor adherence and possible adverse events. The statistically significant higher percentage of MHV patients receiving an INR compared to AF patients receiving an INR indicates physicians are processing risk (higher risk for stroke in MHV patients) into their decision to conduct INR testing. Additional studies are needed to determine the cause of under-adherence in managing patients at risk for stroke and how Medicare policies may affect prescribing decisions and patient outcomes.

REFERENCES

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