IN-PATIENT INITIATION OF WARFARIN TREATMENT: AN AUDIT

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Anticoagulation charts for in-patient warfarin initiation were designed for rapid and safe anticoagulation (Fennerty et al 1988). The predicted maintenance dose of warfarin can be estimated by the fourth day of treatment, when most patients reach their target INR and may be ready for discharge home. At busy times the protocol is not followed and this could result in delayed patient discharge. There is some evidence that the patients admitted to hospital at weekends with aortic aneurysms, pulmonary embolism and acute epiglottitis have a higher mortality rate (Bell & Redelmeier 2001).

The purpose of the audit was (1) to determine the proportion of patients whose anticoagulation does not follow the hospital’s protocol, and (2) explore whether the length of hospital stay was related to monitoring of the INR, or to the weekday the patient was admitted to hospital.

All in-patients starting warfarin at the Royal Hallamshire Hospital, Sheffield between 01/10/00 and 30/9/01 were selected using the coagulation laboratory database. Of 355 patients identified, 339 (95%) had anticoagulation charts and complete clinical records examined for our study. Multiple regression analysis was performed using the length of stay after anticoagulation initiation as the response, and age, gender, specific INRs documented, indication for treatment, the day of the week of hospital admission, stated plan for duration of treatment, and number of days between admission and warfarin initiation, as the predictors of the response.

The baseline characteristics of patients were as follows: age 66.6 SD ± 16.1 years; 47.2% male; 89.7% medical patients; indications for treatment; deep vein thrombosis 47.2%, pulmonary emboli 30.1%, atrial fibrillation 22.7% and 6.2% others. On average 2.7 INRs were performed per patient. Only 9% of patients had all 4 INR results documented, 61% had 3, 24% had 2, 6% had 1 and <1% had no INRs documented. The baseline INR measurement was only present in 16% but on subsequent days the INR was measured in more than 76% of patients. The mean the length of hospital stay after warfarin initiation was 11.3 ± 15.8 days. Increasing age (p<0.001), day of the week of hospital admission (p<0.002), and the number of days between admission and warfarin initiation (p<0.015) were significant independent predictors of the length of hospital stay. These factors accounted for 8%, 3% and 1% of the total variance respectively.

Warfarin initiation in a busy teaching hospital setting is imperfect, but missing some INR measurements was not associated with a longer hospital stay. Perhaps predictably increasing age did influence the length of hospital stay, but an unexpected finding was a significant association with day of hospital admission. This finding could be explained by the variability of diagnostic tests available out-of-hours and at weekends, but needs further study.

Bell & Redelmeier. New England Journal of Medicine 2001; 345; 663-8
Fennerty et al; British Medical Journal; 1988, 297; 1285-8