

ANTICOAGULANT SELF-MANAGEMENT USING NEAR PATIENT TESTING AND DECISION SUPPORT SOFTWARE PROVIDED VIA THE INTERNET IMPROVED ANTICOAGULANT CONTROL IN PATIENTS ON LONG TERM WARFARIN

Aim: To compare anticoagulant control in patients using self-testing and decision support provided via the internet with standard laboratory testing. The study was approved by the regional ethics committee.

Methods: Patients on long term warfarin who had been on treatment for more than 12 months were invited to participate. Patients were changed from standard laboratory monitoring with warfarin dosing monitored by a doctor, to home management using a CoaguChek (Roche) monitor with online decision support (INR Online Ltd). This was a prospective comparative study. INR results from patients using self-testing were compared with INR results for the same patients from the previous 12 months using lab monitoring. Each patient was provided with a CoaguChek and taught how to enter data into the online decision support website. The INR results were entered into the website and an immediate dose recommendation returned. INR results outside the therapeutic range were reviewed by a doctor and the patient was advised of dose adjustments by e-mail.

Assessment of control: The following were recorded: The % of time the INR results were above, below and within the therapeutic range, the percentage of INR results above 4.0 and above 5.0, and the mean interval between test. Patients were defined as having “good control” if their INR results were within the therapeutic range for >60% of the time.

Results: 46 patients participated in the study. 3 withdrew early with difficulties performing self-testing.

| | Laboratory management | Self-testing & computer support | p value |
|--|-----------------------|---------------------------------|---------|
| Mean % days in range (n=43) | 71 | 80.4 | 0.14 |
| Mean % days in range in patients with >60% of time in range prior to change. (Good control prior) (n=31) | 83.4 | 79.5 | 0.16 |
| Mean % days in range in patients with <60% of time in range prior to change (Poor control prior) (n=12) | 40.4 | 65.5 | 0.0072 |
| % days below therapeutic range | 20.7 | 11.3 | 0.032 |
| % days above therapeutic range | 8.2 | 8.4 | 0.35 |
| Average interval between tests | 19.6 days | 10 days | <0.005 |
| No. patients with >60% of time in range | 31 | 38 | 0.02 |
| % tests with INR >4.0 | 2.17 | 2.66 | |
| % tests with INR >5.0 | 0.57 | 0 | |

12 patients had poor control (INR in range <60% of time) prior to the change to self-testing, of these 11 improved with 8 achieving good control with a significant improvement in the mean number of days in range.

Conclusion: Self-testing with computer decision support via a website achieved anticoagulant control at least as good as laboratory management. There was a trend towards improved control with the time the INR was in range increasing from a mean of 71% to 80.4% with a significant improvement in patients with poor control prior to the change (40.4% to 65.5%). The results suggest a tightening of control with less INR measurements below the therapeutic range and no patients with an INR above 5 using self-testing. Home testing with computer support is convenient for patients, allows more frequent testing and achieves improved control.