

Anticoagulant monitoring with near patient testing with computer decision support provided via the internet improved anticoagulant control in a remote rural region of New Zealand.

P.L.Harper, C Ford, P Ngata.

An internet based anticoagulant monitoring system combined with near patient testing has been used in a community based clinic for patients established on warfarin. We present the audit results comparing anticoagulant control before and after the introduction of the internet based system.

Methods: Patients established on long-term warfarin were changed from laboratory testing with dose adjustment by their own doctor (Standard Management) to near patient testing with computer support (NPT/CS) provided over the internet. The NPT/CS system was introduced in November 2006 and involved INR testing with a CoaguChek® at 5 sites in a rural region in New Zealand. The INR results were entered into the decision support software via a web-site and an immediate dose recommendation produced. The recommendation was assessed by a nurse and if necessary referred to a doctor for review

Assessment of control: The number of INR results within the therapeutic range, the number of days within the therapeutic range, the number of patients with more than 60% of tests in range (BCSH guideline) and the number of INR results above 5.0 were recorded.

#### Results

43 patients were switched from standard anticoagulant monitoring to the NPT/CS system. All patients had results from at least 4 tests prior to the change.

	Standard management	Near Patient Testing & computer decision support via the internet	p value
% tests in range	57.9	58.1	0.86
% days in range	60.7	67.7	0.054
Average interval between tests	28 days	20 days	0.0003
No. patients with >60% of time in range	24	31	0.032
% tests with INR >5.0	0.51	0.96	0.49

19 patients had poor control (the INR in range <60% of the time) prior to the change to the NPT/CS system, of these 16 improved with an average improvement of 31% with 10 achieving good control (the INR tests in range >60% of the time). Only 3 patients, with good control prior to computer dosing, had poor control after the change. Less than 1% of measurements were >5.0 with an insignificant difference between the 2 groups.

Conclusion: Near patient testing with computer decision support via a web-site achieved control at least as good as standard management. There was a trend to improved control with the number of days the INR was in range increasing from 60.7 to 67.7%, with significantly more patients with >60% of time in range, although the numbers are small (24 v 31). There are many factors that influence the anticoagulant control including compliance, co-morbidities and other medication. However the introduction of the near patient testing in a remote region of New Zealand made access to testing easier with a significant increase in the number of tests per patient and an improvement in the number of patients with acceptable control.