Clinical and scientific letters

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Efficiency in follow-up immunology testing for patients with connective tissue diseases and vasculitis

Introduction

The NHS is under significant financial stress and there is an important responsibility to make savings when possible.[1] Immunology tests, including autoantibody testing and measurement of immunoglobulins, are expensive and may be requested without their results impacting upon patient management. As part of the Royal College of Physicians *Learning to make a difference project*, a quality improvement project (QIP) which aimed to improve efficiency associated with follow-up immunology testing, was initiated.[2]

Method

Immunology tests requested for a grab sample of 30 patients attending the lupus and connective tissue disease (CTD) clinics at Central Manchester Foundation Trust in May 2010 were reviewed in order to establish the baseline use of these requests. Included subjects had an established diagnosis of systemic lupus erythematosus (SLE), Sjögren's syndrome, scleroderma, adult idiopathic myositis or antineutrophil cytoplasmic antibody-associated vasculitis which had been made prior to May 2008. All tests requested between May 2008 and May 2010 were recorded and cross-referenced with clinic letters from each appointment.

A literature review did not identify any existing guidelines for requesting follow-up immunological tests in such patients. Using the consensus expertise of clinicians within the department, a guideline for 'appropriate testing' in clinically stable patients (Table 1) was developed. The results of the initial data collection with these guidelines were compared, and the frequency and cost of 'unnecessary' tests calculated.

The first intervention was to present these initial results to the rheumatology department. Individual costs for each test were provided and, by discussing cases, debate was stimulated and the rationale for the guideline was clarified. Requests made for a further grab sample of 30 patients attending the clinic were recorded. The agreed guidelines and test costs were disseminated to the department using email and displays within each clinic room. The requests for a further 30 patients were reviewed following this second intervention.

Results

Baseline results for the first 30 patients, extrapolated across the whole year, suggested that the rheumatology department requested approximately 6,880 immunological tests for patients with established SLE and CTDs per year, at an estimated cost of £57,840 for 1,200 patient visits. Applying the guidelines, it was estimated

Table 1. Manchester Guidelines for immunological testing in stable patients with established connective tissue disease and vasculitis.
ACL = anticardiolipin antibodies; ANA = anti-nuclear antibodies; ANCA = anti-neutrophil cytoplasmic antibodies; CCP = cyclic citrullinated protein; CTD = connective tissue disease; ENA = extractable nuclear antigen; IP = inflammatory polyarthritis; LAC = lupus anticoagulant; SLE = systemic lupus erythematosus.

Test	Indication/presentation
Rheumatoid factor	New clinical manifestation of IP or erosive disease noted on radiology
Anti-CCP antibodies	New clinical manifestation of IP or erosive disease noted on radiology
C3/C4 complement	SLE monitoring (maximum frequency; every three months if well).
Anti-dsDNA antibodies	SLE monitoring (maximum frequency; every three months if well).
ANA	New clinical features develop in a previously ANA-negative individual.
ENAs	New clinical features develop in a previously ENA-negative individual (eg photosensitivity, Interstitial lung disease, Raynaud's phenomenon, sicca symptoms, sclerodactyly). CTD patient planning or confirmed pregnancy (Ro/La).
ACL	Consider annually if previously negative. CTD patient planning or confirmed pregnancy. (**In any situation, need to have two positive tests>12 weeks apart to confirm positivity).
LAC	Consider annually if previously negative. CTD planning or confirmed pregnancy. (**In any situation, need to have two positive test>12 weeks apart to confirm positivity).
Immunoglobulins	CTD patients with history of infection. Assess when considering rituximab (once) and prior to subsequent infusion cycles. Every 1–2 years in patients with Sjogren's syndrome (primary or secondary).
ANCA	ANCA-associated vasculitis: monitoring (maximum frequency; every three months if well).

that 51% of these tests could be classified as 'unnecessary'. This represented a potential for saving £29,760 per year.

Following the interventions, the frequency of 'unnecessary' tests requested for the last sample of 30 patients reduced from 20 to seven, equivalent to a 70% reduction. The total cost of these tests was reduced from £186 to £51. These reductions can be extrapolated to represent a saving of approximately £21,427 per annum. This efficiency will be maintained by altering computerised requesting systems and ongoing education within the department including adding this guidance to our induction portfolio.

Conclusion

Educational intervention for this QIP achieved the aim of improving the efficiency of follow-up immunological test requesting. Clear guidelines and simple educational interventions lead to significant savings. These interventions are transferable to all areas of medicine and represent an easy way to make savings in the current economic climate. The adoption of these guidelines by other rheumatology, immunology and medical departments is recommended in order to improve efficiency. The adoption of these guidelines by other rheumatology, immunology and medical departments is recommended in order to improve efficiency, and a project to extend these local guidelines regionally is currently underway.

CHARLOTTE A SHARP
ST3 rheumatology, North Western Deanery and national clinical leadership fellow

IAN N BRUCE
Professor of rheumatology

NIHR Manchester Biomedical Research Centre, Central Manchester Foundation Trust

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An electronic prescribing system can ensure thromboprophylaxis is considered

According to National Institute for Health and Clinical Excellence (NICE) guidelines, all inpatients should have their risk of deep vein thrombosis assessed when they are admitted to hospital[1] but adherence to this recommendation is poor.[2] Electronic prescribing systems can dramatically reduce drug errors.[3] This investigation explored whether these systems can effectively prompt consideration of thromboprophylaxis.

A retrospective audit of 18,326 consecutive acute medical admissions to Queen Elizabeth Hospital, Birmingham from March 2009 to September 2010, identified using the Birmingham Systems Prescribing Information and Communication System (PICS), was conducted. The PICS system mandates that the admitting doctor explicitly considers the need for pharmacologic thromboprophylaxis with low molecular weight heparin (LMWH) and records the decision this doctor has made, although this decision can be deferred. The audit criteria were that within 24 hours of admission all medical patients should be assessed for thromboprophylaxis. When there were no contraindications, LMWH should be prescribed within 24 hours and, when prescribed, it should be given within 24 hours. It was hoped that 90% adherence to this standard should be achieved. A previous audit carried out in 2008 by another group within the hospital at the inception of the PICS system showed 75% compliance with thrombosis assessment, with adherence rising rapidly with time.[4]

Of patients, 99.7% were assessed for venous thromboembolism risk within 24 hours of admission. Of those deemed to require thromboprophylaxis, 73.9% were prescribed LMWH within the same time period; 58.3% received their first dose within 24 hours of admission. Reasons for delay in the administration of LMWH appear to include the admitting doctor waiting for confirmation from more senior colleagues on the next ward round, and prescribing LMWH at a future date rather than immediately.

There are some constraints to this study. The audit focused on the timing of risk assessment and delivery of thromboprophylaxis, rather than its necessity and appropriateness. A small number of admissions may not have been added to the PICS system, and hence would not have been included in the study. Finally, the time of admission of patients onto the PICS system may not correlate precisely with the time of true admission as a result of delays in patient clerking.

Large studies have demonstrated that the use of electronic systems to prompt the use of thromboprophylaxis can reduce the risk of thromboembolism by as much as 40%.[5] This study has shown that an electronic prescribing system can ensure that pharmacologic thromboprophylaxis is considered in a very high proportion of patients in a timely manner. Further work is necessary to improve the administration of prophylaxis within the first 24 hours of admission.

ELA STACHOW
Foundation year 1, critical care

MICHAEL BERRY
Consultant in respiratory medicine and honorary senior lecturer

ANDY JOHNSTON
Consultant in respiratory medicine and critical care

Department of Medicine, Queen Elizabeth Hospital, Birmingham

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