

Gamechangers

ON THE CUSP OF A DIGITAL PATHOLOGY REVOLUTION

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Histopathologists play a key role in clinical medicine providing tissue diagnoses to guide patient management. For many decades this has involved microscopy using a traditional microscope. Internationally this practice is slowly being replaced with high resolution digital images, similar to modern digital radiology.

Potential benefits of digital pathology include workflow improvement and quality improvements for patients. Digital images are readily available to review in routine practice and at multidisciplinary team meetings.¹

In 2006, a review of pathology provision in Northern Ireland² recommended a radical reduction in the number of histopathology laboratories allowing for subspecialist reporting. This was never implemented due, in part, to local opposition. The adoption of digital pathology within a clinical network of small laboratories permits subspecialisation regardless of the size of the laboratory allowing histopathologists to remain *in situ*.

There are a number of perceived disadvantages including image quality and cost of image storage.³ There are also training issues as most histopathologists find digital images slower to examine than traditional microscopic images, making some resistant to change. Possible ethical issues surrounding digital photography, such as fraudulent image manipulation, could require the development of protective measures.³

The transition in histopathology will be smoother if lessons are learnt from our colleagues in radiology. Digitisation of pathology is inevitable.

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MEPOLIZUMAB AND ITS ROLE IN THE TREATMENT OF EOSINOPHILIC ASTHMA

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Recent studies have increasingly focused on the heterogeneity of asthma, promoting the concept that asthma consists of multiple phenotypes, thus leading to phenotype specific clinical trials and the development of targeted therapies.¹

Eosinophilic asthma is now recognized as an important phenotype associated with increased asthma severity, atopy, late-onset disease, and poor response to steroid treatment².

Current guidelines for management of asthma recommend that treatment start at the step most appropriate to the severity of symptoms. In cases of severe asthma this can result in daily oral glucocorticoid therapy.

Mepolizumab is a monoclonal antibody which targets Interleukin-5- a key regulator of eosinophil maturation and activation. It is indicated for the add-on maintenance treatment of patients with severe eosinophilic asthma who remain uncontrolled despite treatment at Step 4/5 of the BTS/SIGN guidelines for management of asthma³. However, it is important that demonstration of adherence to standard therapy is confirmed.

When investigating the steroid sparing effect of Mepolizumab, a 50% reduction from baseline glucocorticoid dose has been reported, compared to placebo, which showed no reduction. Mepolizumab demonstrated an annual reduction in asthma exacerbations by 32%.¹

With EMA approval granted in early December 2015, Mepolizumab can be expected to improve outcomes in patients with eosinophilic asthma due to its significant glucocorticoid-sparing effect and proven reduction in exacerbations.

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HEART RHYTHM SOCIETY UPDATE ON MANAGEMENT OF POSTURAL TACHYCARDIA SYNDROME AND INAPPROPRIATE SINUS TACHYCARDIA

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The latest guidance on managing two conditions not infrequently seen in young people referred to cardiology clinic.

Postural Tachycardia Syndrome (POTS)

POTS is characterised by (1) symptoms occurring with standing including light-headedness, palpitations and fatigue; (2) increased heart rate >30 beats per minute (bpm) when moving from recumbent to standing position; and (3) absence of orthostatic hypotension. Prevalence is approximately 0.2%. Most patients are female (75%) aged between 15 and 25 years. Contributory mechanisms include peripheral autonomic denervation, hypovolaemia and hyperadrenergic stimulation. Diagnosis is clinical supported by orthostatic vital signs. Symptoms are exacerbated by dehydration, heat, alcohol and exercise. Treatment is difficult with no uniformly successful approach. Nonpharmacologic methods include increased salt and fluid intake, compression garments and graduated exercise. Pharmacological therapies include fludrocortisone which can boost fluid retention, midodrine which augments peripheral vasoconstriction and reduced dose propranolol (10-20mg) which reduces palpitations. Ivabradine slows sinus rates without affecting blood pressure. Radiofrequency sinus node ablation is not recommended as it often worsens symptoms and occasionally necessitates pacemaker implantation.

Inappropriate Sinus Tachycardia (IST)

IST is defined as resting sinus heart rate >100 bpm (mean 24-hour > 90 bpm) associated with palpitations. Prevalence is estimated at 1.2% including symptomatic and asymptomatic patients. Underlying pathophysiological mechanisms include increased sinus node automaticity, beta-adrenergic hypersensitivity and decreased parasympathetic activity. Diagnosis is confirmed by excluding exogenous causes of tachycardia while documenting sinus tachycardia using electrocardiogram and 24-hour Holter. Lifestyle changes are advocated early in treatment. Beta-adrenergic blockers are not usually effective and can worsen symptoms. Ivabradine has a modest evidence base for reducing symptoms and heart rate. Radiofrequency ablation has limited success and is associated with numerous complications.

REFERENCE

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