

Horizons in Medicine 25: Advancing on all levels

Rebecca Fitzgerald

Every year, the volume and pace of medical research increases and the practising physician can struggle to keep updated on the most important advances, even within his or her own specialty. Now entering its sixth decade, the RCP's Advanced Medicine Conference hosts speakers from centres of excellence across academia and the NHS, offering a unique opportunity for consultants, trainees and GPs to be inspired and informed by expert talks that provide a bridge between the cutting edge research and practical applications in the clinic.

The papers gathered in here in this special supplement to *Clinical Medicine* offer just a snapshot of 4 days of talks, but give a flavour of the range of topics covered, with specialties including cardiovascular medicine, hepatology, gastroenterology, respiratory medicine, rheumatology, haematology, neurology, pharmacology, genetics and elderly care. The advances that ultimately translate into changes in clinical practice can occur on many levels – basic science, technological development, or simply a paradigm shift in how a disease is regarded – and the papers included here span this continuum.

At one end of the spectrum, Dr Wing-Kin Syn outlines how pure research into the role of morphogens such as Hedgehog in the mechanism of non-alcoholic fatty liver disease, now the leading cause of chronic liver disease, is being translated into new possibilities for therapeutic agents. Similarly, Professor Alan Burnett takes the reader from the basic science of blood cell lineages in acute myeloid leukemia through to an overview of a therapeutic landscape that is on the cusp of translating a deluge of new molecular information into novel options in the clinic. Also exemplifying the translation of basic science to clinical medicine, Dr Jonathan Landy and Dr Alisa Hart follow on from the milestone of genetic mapping of the microbiome by the Human Microbiome Project last year to review the role of intestinal bacteria in the aetiology of inflammatory bowel disease and the development and application of therapies such as microbiotic transplantation.

Technological advances can have an equal impact on clinical practice. Cardiovascular magnetic resonance has revolutionised the treatment of conditions ranging from thalassemia to cardiomyopathies; Dr Laura-Ann McGill and Professor Dudley Pennell review the prospects for further advances in the near and more distant future. Another example comes from the widening evidence base for the application of non-invasive positive-pressure ventilation in an increasing variety of conditions. Professor Anita Simonds and Dr Alanna Hare review the latest updates in

this area, including the development of 'intelligent' ventilation modes that adapt more precisely to patient requirements.

Technological advancement also underpins Dr Miles Parkes' wide-ranging review of personalised medicine and genetic prediction. Taking examples from specialties ranging from oncology to gastroenterology, he assesses the likely impact of recent progress in genetics on risk profiling, diagnosis and tailored treatment in the clinic.

New technologies can bring therapeutic challenges along with opportunities. Novel modes of computed tomography (CT) scanning allow the detection of ever-smaller lung nodules, and with up to 80 possible etiologies, the differential diagnosis of solitary lung nodules is an increasingly important challenge for radiologists and respiratory physicians. Dr Robert Rintoul and colleagues review the latest diagnostic techniques and algorithms that can provide a way through the maze.

Nor are improvements in clinical treatments and technologies the end of the story. People with HIV now have a dramatically increased life expectancy and quality of life compared to 15 years ago, but preventing and treating neurological and cognitive symptoms remains a challenge, partly due to factors such as viral replication being harder to eradicate in the central nervous system than the rest of the body, and partly because the overall success of treatment means that HIV patients are older and more likely to have co-morbid conditions. Dr Hadi Manji and colleagues review the current situation. Similarly, the widespread use of thrombolysis has transformed effective treatment for stroke but this is still a leading cause of mortality and disability. Dr Robert Harford and Professor Pippa Tyrrell highlight the importance of further improvements to stroke service design to ensure all stroke patients receive optimal treatment and review the latest research on how mitigations and adaptations can reduce side effects and extend the thrombolysis treatment to patient groups in whom it may currently be contraindicated. Also in the area of cardiovascular medicine, the new oral anticoagulants, with their reliable dose response and reduced need for monitoring in comparison to warfarin, the previous mainstay of treatment, have revolutionised the management of conditions ranging from venous thromboembolism to atrial fibrillation while introducing new clinical limitations and challenges. Professor Mike Laffan and Dr Susie Shapiro review the new landscape of anticoagulation.

Other papers included here illustrate that advances in clinical medicine can be the result of a paradigm shift in recognition. It has only recently been recognised that eosinophilic oesophagitis is a common disorder, with an incidence in the UK population comparable to inflammatory bowel disease; Professor Stephen Attwood explains how frequent misdiagnosis as gastro-oesophageal

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reflux disease has prevented patients from receiving optimal treatment, and summarises the latest developments in diagnosis and treatment. Similarly, Professor Rodney Grahame provides a perspective on the recent shift in thinking that has seen joint hypermobility syndrome reclassified as a multi-systemic genetic illness, rather than a relatively trivial disorder in otherwise healthy subjects, and reviews the implications for clinical management.

Finally, changes in society are drivers for changes in clinical practice, with the aging population being one of the most important. Older patients are at increased risk of malnutrition and adequately addressing nutritional in older acute patients presents numerous challenges; Dr Martin Vernon and colleagues present an overview of the clinical evidence for the decisions on assisted

nutrition that clinicians are being faced with increasingly often. The aging population is also behind an increasing but under-recognised clinical challenge – substance misuse in the elderly. As Professor Ilana Crome explains, better recognition of this problem has also brought a growing body of evidence that addiction can be successfully treated in this group, although specific treatment data and screening tools are urgently required.

A collection of papers can only give a flavour of an event such as this, with its opportunities for dialogue, debate and discussion, and as conference organiser I would like to reiterate my thanks to all the speakers. The 2014 Advanced Medicine Conference promises to offer another fascinating overview of biomedical advances from the laboratory bench to the clinic and I should finish by advising all readers who are able to attend to do so.

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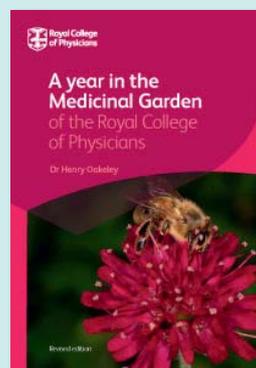
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