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Infectious Diseases symposium

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The Infectious Diseases symposium was held on 8 June 2016 at the Royal College of Physicians of Edinburgh

DECLARATION OF INTERESTS No conflict of interests declared

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EDUCATION

INTRODUCTION

This was an excellent day of education and interaction. The speakers delivered talks on a broad range of topics and came from a variety of backgrounds.

SESSION 1: FROM BENCH TO BEDSIDE

Professor Adilia Warris (Aberdeen Fungal Group) started with an insight into how current research on *Aspergillus* pathogenesis may influence future clinical practice. Current research suggests the pathogenesis of *Aspergillus* infection may vary in different types of immunosuppressed hosts. Understanding the role of hyper-inflammation during invasive aspergillus in chronic granulomatous disease[1] has led to the rationale for exploring immune-modulatory therapies.

Professor Jon Cohen (Brighton and Sussex Medical School) reviewed the latest set of definitions of sepsis including sepsis 3 and qSOFA.[2] QuickSOFA (qSOFA) has been proposed as an early indicator of sepsis:

Respiratory rate > 22/min
GCS < 13
Systolic BP < 100 mm/Hg

Two out of the above three criteria are associated with ITU admission and death. Potential benefits of the new definitions are that they are based on large data sets. They are useful to the clinician in real-time and simplify the terminology relating to sepsis. However initial caution was advised as qSOFA, similar to systemic inflammatory response syndrome, may prove to be too sensitive leading to antibiotic use in sterile inflammatory states.

Dr O'Sullivan (Teagasc Food Research Centre, Cork) described how current molecular techniques have allowed greater understanding of our microbiome as only 10–50% of gut micro-organisms are culturable. Generally, a diverse microbiome is associated with good health. There may be increasing therapeutic roles for faecal transplants or 'poop pills' as further evidence accumulates in this dynamic area.

SESSION 2: MOSQUITO-BORNE INFECTIONS

Dr Elizabeth Ashley (University of Oxford) described the progress achieved in reducing malaria deaths in the last 20 years (2 million deaths/year to 43,800 deaths), as well as the previous and future challenges of drug-resistant malaria. Artemisinin-based combination therapy, rapid diagnostic tests and long-lasting insecticide-treated bed nets have been effective tools in reducing harm caused by malaria. However, the emergence of resistance to artemisinin and insecticides, and the unexpected discovery of severe *Plasmodium knowlesi* infection in south-east Asia, demonstrate there is still much work to be done to ensure malaria deaths continue to fall.

Dr James Whitehorn (London School of Hygiene and Tropical Medicine) highlighted the difficulty in creating a dengue fever vaccine due to the genetically diverse four serotypes of dengue. New terminology of dengue, dengue with warning signs and severe dengue were defined. Dr Whitehorn mentioned new prevention strategies may include *Wolbachia* intracellular bacteria introduced to the vector mosquito *Aedes agypti* to reduce the spread of dengue fever.

SESSION 3: ANTI-INFECTIVES

Dr Lloyd Czaplewshi (Chemical Biology Ventures Ltd) began by asking what would happen if no new antibiotics were discovered and what are the alternatives to antibiotics? He described potential new therapeutics in

the pipeline including antibodies, probiotics, lysins and peptides. However, a new product for systemic infection was felt to be unlikely in the next 10 years without better funding and sustained international collaborations.

Dr Ceire Costelloe (Imperial College London) described the increasing global challenge of resistant bacteria with 25,000 people dying in the EU each year from multi-drug resistant bacteria. Strategies described to address this problem included a Point Of Care *Antimicrobial Stewardship Tool* (POCAST) to assist primary care antibiotic prescribing and addressing under-dosing in obese patients.

SESSION 4: BEST EVIDENCE FOR MANAGING COMMON INFECTIONS

Dr Stephanie Dundas (Monklands Hospital) described her real world experiences from the multidisciplinary diabetic foot infection clinic in Lanarkshire. She recommended against swabbing ulcers with no signs of infection and to consider serial X-rays if looking for evidence of osteomyelitis.[3]

Dr Alec Bonnington (North Manchester General Hospital) gave an overview of the current impact and management of hepatitis B virus (HBV) infection. He described the high prevalence in sub-Saharan Africa and much of Asia and South America. Approximately 5–15,000 people are infected with hepatitis B in Scotland, most of whom are from endemic countries. He explained all patients with current infection should be referred to a specialist for monitoring and consideration of treatment. Treatment usually involves long term tenofovir or entecavir, or finite interferon therapy.[4] Future treatment possibilities include tenofovir then interferon therapy and combination therapy to attempt cure.

Dr Nick Kennedy (Monklands Hospital) described the challenge of managing an increasingly older cohort of patients living with HIV. He described the theories of how HIV may lead to premature ageing but also referenced Dr Martin Fisher's paper warning against 'premature' conclusions in this area. A general learning point from the clinical cases presented included the significant interaction between simvastatin and ticagrelor with protease inhibitors. Increasing HIV testing in wider settings was encouraged, but with the need to ensure appropriate access to specialist care is available.

SUMMARY

Current best practice and future possibilities in the rapidly evolving world of infectious diseases were covered at this symposium. The sessions appealed to a broad range of healthcare professionals involved in the care of patients with infections. I look forward to new potential treatments in *Aspergillus*, bacterial infections and malaria, as well as encouraging best practice based on the current evidence base and guidelines. For more details, consider viewing the full lectures online.

REFERENCES

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