it has been shown that the gastrointestinal tract of patients undergoing cytotoxic chemotherapy regimens can become leaky, thus allowing the translocation of gut microflora into the circulatory system and cause bacteraemia. With regard to the antibiotic susceptibility of the 10 LAB isolates examined against the β lactams (penicillin), the macrolides (erythromycin) and the glycopeptides (vancomycin & teicoplanin), antibiotic resistance rates were 20%, 20%, 70% and 70%, respectively. One LAB isolate was multiresistant, i.e. resistant to two classes of antibiotics from three; i.e. β lactam + glycopeptides and another LAB isolate was pan-resistant, i.e. resistant to all three classes of antibiotics. However, even with such resistance patterns, there were alternative antibiotic management strategies for each of these isolates, namely the macrolides for the former isolate and tetracycline for the latter isolate.

From these reports, although the LAB have been involved in a small number of cases of bacteraemia over a recent 10 year period, these organisms are not considered frequent causal agents of bacteraemia and are considered organisms of low pathogenicity (if any). Therefore, the benefits of their use as mediators of immunological homeostasis of the gut outweigh their risk as causal agents of bacteraemia, except, as we can see from above, in patients with an immunocompromised or immunosuppressed status, which may require further investigation.

The low frequency of their aetiological involvement in clinical infection allows us to move forward with relative confidence with immunocompetent populations, relating to the novel and innovative ways we can deploy such organisms to moderate host microbiomes.

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A POTENTIAL DIAGNOSTIC ROLE OF DUAL-PHASE 18F-FDG PET/CT SCANNING

Editor

Differentiation between benign and malignant processes is helped by positron emission tomography – computed tomography (PET-CT). This involves a scan one hour after intravenous injection of Fluorodeoxyglucose (FDG) tracer. Malignant lesions use glucose preferentially, with prolonged affinity for FDG, thus appearing as a “hot spot” as quantified by elevated maximum standarised uptake value (SUVmax). Infective processes also induce increased FDG uptake. Dual-phase scanning, which employs both early and delayed scans may separate these conditions. We report two cases where dual-phase scanning resulted in a change in the patients diagnosis and management.

Fig 1. The initial study demonstrating a bronchial lesion.
CASES

A 55-year-old male life-long smoker presented with chest pain, shortness of breath and haemoptysis. A CT scan demonstrated an obstructing lesion in the left lower lobe bronchus and distal consolidation. Bronchoscopic biopsies were reported as squamous cell carcinoma. A $^{18}$F-FDG PET/CT half-body one-hour and four-hour washout studies were performed (Figure 1). An abnormality in the proximal left main bronchus had a SUVmax value of 13.9, with distal atelectasis and central necrosis. However, FDG uptake was seen anterolaterally within the collapsed segment, with a SUVmax of 10. Delayed imaging showed a 20% increased SUVmax of the central hilar and anterolateral peripheral lesions, with the necrotic area showing no change in SUVmax (Figure 2). The findings were inkeeping with hilar and peripheral malignant lesions, with surrounding inflammation. Histopathology confirmed a pT4 N1 squamous cell carcinoma, with satellite lesions and aspergillus infection in the collapsed lower lobe. Unfortunately, he developed local recurrence and bony metastases and died seven months following resection.

A 46-year-old female smoker presented with shortness of breath and a productive cough. CT demonstrated right upper lobe collapse and a central lesion. Bronchoscopy visualised a friable necrotic lesion obstructing the right upper lobe provisionally diagnosed as malignancy. Cytology was atypical, with a small piece of vegetable matter, suggesting aspiration. $^{18}$F-FDG PET/CT showed a lesion, with a SUVmax of 5.6, in the right upper lobe bronchus, suggesting a hilar tumour and distal atelectasis with SUVmax of 4.8 (Figure 3). A washout study revealed a decreased SUVmax from 5.6 to 3.4 in the hilar lesion, inkeeping with inflammation (Figure 4). Repeat bronchoscopy retrieved vegetable matter with no histological malignancy.

DISCUSSION

Malignant cells have upregulated GLUT transporter and hexokinase activity, trapping FDG.\(^1\),\(^3\) After phosphorylation by hexokinase, FDG-6-phosphate cannot be used nor stored.\(^1\),\(^3\) FDG uptake in malignant cells continues and SUVmax peaks 130-500 minutes after FDG injection.\(^4\) Inflamed tissue, with higher metabolic rate will also light up. However,
FDG will be metabolised and replaced by unlabelled glucose. If a malignant cell is present, the continued FDG uptake between scans results in higher intensity of retained FDG at 4 hours. Inflammatory cells, which retain normal glucose-6-phosphatase activity, will have decreased signal. In our experience, a rise in SUVmean of 30% correlates with malignant disease, with no increase suggesting benign diagnosis.\(^5\) In the presence of infection satellite lesions may be missed, thus understaging the disease, with possible unnecessary non-curative surgery. Despite additional cost, a washout study can alter the management strategy of patients.

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DOCTOR-PATIENT RATIOS AND ACUTE MEDICAL ADMISSIONS: A SIMPLE SOLUTION FOR AN IMPORTANT PROBLEM!

Editor,

There has been a 9% rise in the number of hospital admissions under acute care over the last 5 years in Northern Ireland and majority of these are over 65 years of age and with complex needs\(^1\). The medical admission process has considerably improved over the years with introduction of proformas and risk assessment tools. Both these factors have contributed to an increase in workload for doctors undertaking acute medical admissions. Over a quarter of medical registrars throughout UK reported an unmanageable workload and about 66% reported it as heavy as per the recent survey conducted by the Royal College of Physicians\(^2\).

At a recent audit meeting within our hospital, a number of clinical incidents concerning the initial admission process were highlighted. These included incomplete venous thromboembolic risk assessments, poor record of medications and, prescription errors. Majority of these incidents happened during night shifts. We hence undertook a project to ascertain the reasons for this by specifically looking at the distribution of doctors.

**Figure 1.**
Average patient and doctor numbers during various shifts in a 24-hour period.

We retrospectively analysed all acute medical admissions during the month of January 2013 in our hospital particularly focussing on their distribution over a 24-hour period. We divided 24-hour period into 4 shifts (8am-1pm, 1pm-5pm, 5pm-9pm and, 9pm-8am) as the number of doctors varied during these time periods as per the existing shift rota. Data was obtained from electronic patient management system (ePMS, Healthintec) and statistical analysis performed using Microsoft Excel (version 2010).

**Figure 2.**
Average time taken to assess patient from the time of emergency department referral.
(Shifts on the X-axis and Time (in hours: minutes: seconds) on the Y-axis).

1,092 admission episodes were included in the study. The average number of admissions in a 24-hour period were 35, of which 40% (n=14) were during night shift (9pm-8am). Although the total numbers of doctors seemed adequate, we found a significant disparity in the doctor-patient ratios among different shifts i.e. the average number of medical admissions and the number of doctors on various shifts (Figure 1). We also found that there was an upward trend in the average time taken to assess patients following a referral over a 24 hour period with a difference of approximately 40 minutes.