

(Table 1). NICTH was considered once the above list of more common causes of hypoglycaemia had been excluded.

TREATMENT & OUTCOME

Calorie intake was optimised and steroid dosage was increased, but this had little effect in preventing hypoglycaemic episodes. The continuous glucose infusion was escalated to 20% glucose, however hypoglycaemia remained refractory. Interval imaging showed malignant disease progression and the options to treat her cancer with surgery, radiotherapy or chemotherapy had been exhausted. The patient died 22 days after the hypoglycaemic attacks began.

DISCUSSION

NICTH is a rare paraneoplastic condition that occurs due to tumoral over secretion of insulin-like growth factor 2 (IGF2). It occurs most commonly in patients with tumours of mesenchymal and epithelial origin.² IGF2 binds to insulin receptors which increases glucose uptake by skeletal muscle and inhibits glucose release from the liver. IGF2 also acts on the pituitary gland and pancreas to suppress the secretion of growth hormone and glucagon.³

In NICTH, the majority of overproduction is of 'big' IGF2 (a prohormone form of IGF2). This prohormone cannot easily be measured and only contributes a small fraction of the total IGF2 level. Therefore, total IGF2 may be reported as normal in NICTH. However, IGF1 is suppressed due to feedback inhibition and so the IGF2: IGF1 ratio is high. An IGF2: IGF1 ratio of greater than 10 confirms the diagnosis of NICTH.⁴

Only half the cases of NICTH have a known tumour at the onset of hypoglycaemia. The remaining half present with hypoglycaemia and a tumour is diagnosed later.⁵

Surgical removal of the tumour in NICTH is curative, however there is no consensus on the optimum strategy for managing inoperable patients. When surgical resection is not feasible, other antitumour therapies such as chemotherapy, radiotherapy or tumour embolization should be considered. In refractory cases, glucocorticoid steroids are the most commonly used medication used to treat NICTH.¹

Dr Kevin Lewis

Correspondence to: Microbiology Department, Craigavon Area Hospital, 68 Lurgan Road, Portadown, Craigavon, BT63 5QQ

Email: kevin.lewis@southerntrust.hscni.net

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DELAFOXACIN, A NOVEL FLUOROQUINOLONE ANTIBIOTIC WITH ACTIVITY AGAINST HOSPITAL-, COMMUNITY- AND LIVESTOCK-ASSOCIATED METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA)

Editor,

Delafloxacin is a new fluoroquinolone antibiotic, approved for treatment of acute bacterial skin and skin structure infections (ABSSSIs) caused by both Gram-positive and Gram-negative organisms.¹ It recently received its regulatory licence from the European Medicines Agency in December 2019 (<https://www.ema.europa.eu/en/medicines/human/EPAR/quofenix>). For a seminal review on this background to this antibiotic, please see the recent seminal review by Mogle and colleagues.¹

As with any newly introduced antibiotic, it is important to evaluate a new antibiotic in the context of the local epidemiology and resistance rates, to aid physicians in the positioning of such a new antibiotic. To date, there have been no reports on the activity of delafloxacin against methicillin-sensitive (MSSA) and methicillin-resistant (MRSA) *Staphylococcus aureus*, within the Northern Ireland context, hence we wished to examine the *in vitro* susceptibility of MSSA and MRSA isolates to this new antibiotic.

Staphylococcus aureus (n=23) isolates [15 MSSA & 8 MRSA] were employed in this study, as detailed in Table 1. Isolates were obtained from the MicroARK Microbiology Culture Repository housed within the Northern Ireland Public Health Laboratory, Belfast City Hospital. Isolates within each category were selected at random for employment in this study. No other criteria were used in the selection of these organisms. Prior to use, all isolates were passaged twice by subculturing on Columbia Blood agar (Oxoid CM0031, Oxoid Ltd., Basingstoke, UK), supplemented with 5% (v/v) defibrinated horse blood for 24h at 37°C, under aerobic conditions. *In vitro* susceptibilities were examined on all 23 isolates, by employing Etest[®] gradient for delafloxacin (range:0.002-32 mg/L), as per manufacturer's instructions (Biomerieux Ltd., France) and in accordance with EUCAST methodology² and interpretive criteria.³ Susceptibility of



isolates to delafloxacin, as determined by the Minimum Inhibitory Concentration (MIC) value (mg/L), are quoted in Table 1.

Given the current EUCAST breakpoint for *S. aureus* sensitivity ($S \leq 0.25$ mg/L), none of the isolates tested were considered resistant to delafloxacin. Presently, there are no published reports of fluoroquinolone susceptibility to *S. aureus* solely in Northern Ireland, however when combined with data from England, the latest published ciprofloxacin resistance rates for 2018 in MSSA and MRSA bacteraemia were 5% and 62%, respectively.⁴

Delafloxacin is the latest addition to the fluoroquinolones in the antibiotic armamentarium. Early indications show that it may have a good *in vitro* susceptibility profile against *S. aureus*. In a study involving ABSSSIs in 1,042 patients from which 685 *S. aureus* isolates were recovered, delafloxacin MIC₉₀ values against levofloxacin-non-susceptible *S. aureus*, MRSA and MSSA isolates were all 0.25 µg/ml and where *S. aureus* was eradicated/presumed eradicated in 98.4% (245/249) of delafloxacin-treated patients. These

Phase 3 clinical trial data suggest that delafloxacin could be a good option for the treatment of infections caused by *S. aureus* isolates causing ABSSSIs, including MRSA isolates, where high rates of ciprofloxacin and levofloxacin non-susceptibility are observed.⁵

Physicians who think that the use of a fluoroquinolone may have a potential role in treating *S. aureus* infection in their patient should discuss options with their local microbiologist.

DECLARATION OF INTERESTS

The authors do not have any interests to declare. Delafloxacin E-test strips were kindly offered to hospitals throughout Europe (www.ihma.com) and were supplied gratis by Menarini Pharmaceuticals, Italy. Neither IHMA, nor Menarini Pharmaceuticals nor their agents were involved in study conceptualization, experimental design, experimental execution, data analyses, report writing nor had any role in the editorial process, funding or any other aspect of the study or writing.

Table 1: *In vitro* susceptibility of NI methicillin-sensitive and resistant *Staphylococcus aureus* to delofloxacin

Organism (Source)	Number of isolates Concentration (MIC) [mg/L]	Minimum Inhibitory	
		Mean	Range
<i>Staphylococcus aureus</i> (methicillin-sensitive; MSSA) Sputum isolates from adult patients with cystic fibrosis (CF)	8	0.043	<0.002-0.19
<i>Staphylococcus aureus</i> (methicillin-resistant: MRSA) Hospital-associated (from blood culture)	6	0.147	<0.002 - 0.25
Hospital-associated (zoonotic; canine)	1	0.19	0.19
Community-associated MRSA [CA-MRSA ST35, 5134, 5090, 4526, 4266 & 4388]	6	0.0233	<0.002 - 0.125
Livestock-associated MRSA LA-MRSA (porcine source) CC398 & CC30	2	0.05	0.006 - 0.094



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Mollie Maguire¹, John E. Moore^{1,2} & B. Cherie Millar^{1,2*}

¹ School of Medicine, Dentistry and Biomedical Science, The Wellcome-Wolfson Institute for Experimental Medicine, Queen's University, 97 Lisburn Road, Belfast BT9 7BL, Northern Ireland,

² Northern Ireland Public Health Laboratory, Department of Bacteriology,

Belfast City Hospital, Lisburn Road, Belfast, Northern Ireland, BT9 7AD.

***Corresponding author**

Professor B. Cherie Millar,
Northern Ireland Public Health Laboratory,
Department of Bacteriology,
Belfast City Hospital, Belfast BT9 7AD,
Northern Ireland,
United Kingdom.

Tel: +44 (28) 9026 3554

Fax: +44 (28) 9026 3991

E-mail: bcmillar@niphil.dnet.co.uk

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PERCEPTIONS OF MEDICAL STUDENTS ON UNDERGRADUATE BASIC SURGICAL SKILLS TRAINING

EDITOR,

Applications to surgical training programmes are on the decline^{1,2}. This is probably due to a combination of factors, including changes in undergraduate curricula and a gender shift in undergraduates. Despite the introduction of a

national undergraduate surgical curriculum, undergraduate training and proficiency in basic surgical skills (BSS) varies widely^{3,4}. We explored the impact of structured BSS workshops on undergraduate students' suturing confidence, interest in pursuing a surgical career and their perceptions of the importance of BSS training.

A qualitative analysis was undertaken of 193 medical students (68% female), ranging from years 1 to 5, attending seven standardised surgical skills workshops run by Scrubs student surgical society (Queen's University Belfast) between October 2018 and March 2019. Anonymous, pre-defined, 5-point Likert scale pre- and post-workshop questionnaires were used. The workshops included several basic surgical knots with instrumental and hand ties on both artificial and animal tissue models, as well as basic laparoscopic skills.

70% of students reported increased suturing confidence post-workshop (p<0.001) (Fig. 1). Additionally, 74% of students reported that the workshop had increased their interest in pursuing a surgical career.

Analysis of pre-workshop questionnaires of senior students (years 4-5, n=62) revealed that only 53% agreed (or strongly agreed) that they would be confident suturing a wound under direct supervision. 74% of senior students reported that they had no experience suturing in clinical practice.

Looking more broadly at undergraduate basic surgical skills training, 94% of students agreed (or strongly agreed) that BSS were important in the undergraduate curriculum. 97% of students agreed (or strongly agreed) that they would like to receive more BSS training in the future and 83% agreed (or strongly agreed) that this would have an influence on their future career choices.

This study has demonstrated that BSS training can increase student suturing confidence and boost interest in pursuing a surgical career. This is on the background of low levels of pre-workshop confidence and clinical experience of suturing in senior students. The power of these workshops to stimulate interest in surgery is likely due to three key factors. Firstly, gaining positive practical surgical experiences helps attract those interested in a hands-on specialty. Secondly, increased suturing confidence better equips students to participate more fully in surgical placements. Lastly, close interaction between demonstrators and students facilitates the development of role models and mentors, which is thought to be one of the main factors in directing career aspirations⁵.

Medical schools and student surgical societies should work together to ensure students receive sufficient high-quality BSS training. Material costs for running such workshops are low, however recruiting surgical demonstrators can be challenging. Better collaboration with surgical trainees could help address this issue. Trainees are motivated to gain teaching experience, have completed surgical skills courses, can provide clinical context to skills and are ideal role models for students.

In summary, simple structured BSS workshops can increase

