Letters

PRE-OPERATIVE CARBAMAZEPINE-INDUCED HYPONATRAEMIA: SHOULD WE ACCEPT A RESET HYPO-OSMOLAR BASELINE AND PROCEED WITH SURGERY?

Editor,

Hyponatraemia is an increasingly ubiquitous abnormality that whilst often reversible, is becoming a recognised pre-operative prognostic indicator. A known caveat of subclinical disease, hyponatraemia has been associated with perioperative coronary events, pneumonias and prolonged in-hospital stays, but has not yet been proven to be a causal determinant of mortality[1].

We present a 31-year-old Caucasian woman with community-acquired hyponatraemia, whose elective thymectomy for myasthenia gravis has been deferred in light of the perceived hazards of serum sodium less than 130mmol/L.

Further analysis revealed an inability to dilute urine (Ur-Osmolality 561mOsm/kg) despite a serum hypo-osmolality (Sr-Osmolality 265mOsm/kg) and high urine sodium content (160mmol/L), classically in keeping with the syndrome of inappropriate secretion of anti-diuretic hormone.

Physical examination was unremarkable, and the patient was clinically euvolaemic and asymptomatic throughout. She did however have a complex medical background that included a trans-osseous cerebral arterio-venous-malformation, epilepsy, gastro-oesophageal reflux and depression, as well as myasthenia gravis.

Four Endocrinologists independently concluded on a diagnosis of drug-induced chronic hyponatraemia. Contributory medications included: Carbamazepine (Tegretol-PR 400mg BD), Omeprazole and Fluoxetine; and being seizure-free for many years, there was strong reluctance to stop Tegretol but Omeprazole and Fluoxetine were stopped. In-spite of this and diligent fluid restriction, her serum sodium remained static between 122-128mmol/L.

At this point Demeclocycline (300mg BD) was tried, but was futile and served only to exacerbate symptoms of her myasthenia, a recognised side effect of Demeclocycline. Treatment was escalated to Tolvaptan (15mg twice-weekly). Although it had marginal impact on zenith sodium (129mmol/L) she noted excessive thirstiness and nausea as side effects. Tolvaptan was nonetheless persevered with.

Biochemistry results and treatment timeline are listed in Table 1.

The chronicity and refractory nature of her hyponatraemia led to the consensus of a reset hypothalamic osmostat to a lowered hypo-osmolar threshold, a recognised phenomenon, most likely due to prolonged use of Tegretol, and to ever achieve pre-operative serum sodium close to 135mmol/L would require significant volume losses.

Table 1.

Biochemistry Results and Treatment Timeline.

	2014	2015		2016
	9-Dec	9-Nov	15-Apr	4-Jul
	*	**	***	
Sr Na	131	127	122	129
Sr Osmo	275	265		
Ur Na	188	160		
Ur Osmo	601	561		

*May 2015 Fluoxetine/Omeprazole Stopped
**Mar 2015 Demeclocycline Commenced
***Apr 2016 Tolvaptan Commenced

Carbamazepine was initially thought to only potentiate anti-diuretic hormone (vasopressin) secretion from the posterior pituitary, but it has been shown to increase the sensitivity of the renal tubule to vasopressin as well, suggesting a duality in cause-effect[2]. To this effect, Carbamazepine has been used to treat polyuric patients with cranial diabetes insipidus specifically for its anti-diuretic properties[3].

However, a study by De Bragança et al revealed that Carbamazepine could itself exert an effect on the nephron, independent of vasopressin. Carbamazepine was found to directly stimulate the V2-vasopressin receptor and thus increase aquaporin-2 expression on the membrane of the collecting-ducts, allowing increased osmotic permeability and water absorption leading to a dilutional hyponatraemia[4].

Furthermore, they realised Carbamazepine could partially recover aquaporin-2 expression in Lithium-induced nephrogenic diabetes insipidus[4] (NDI), suggesting a possible novel treatment modality for Carbamazepine in NDI.

Thymectomy can potentially benefit this patient. Whilst unable to forego Carbamazepine, her consequent hyponatraemia, and gradual resetting to a hypo-osmolar state, has become her baseline. Her hyponatraemia will necessitate closer perioperative surveillance, but acknowledging the mechanism for her hypo-osmolar reset should provide the confidence to proceed with surgery.

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HOW CONFIDENT AND PREPARED ARE CORE MEDICAL TRAINEES IN THE UK TO PROCEED TO THE REGISTRAR LEVEL: THE TRAINEES' PERSPECTIVES.

Editor,

The journey through medical training is full of significant transitions and changes in the responsibilities and seniority levels of trainees[1]. Many articles examine the early transition from a medical student to a newly qualified doctor[2]. Nonetheless, few studies were designed to investigate the impact of on-going transitions following the completion of the first year as a postgraduate doctor and transitions at higher levels of training. We aimed to explore the extent to which core medical trainees in their second (final) year (CMT2) feel prepared and confident about starting their higher medical training.

METHODS

In 2013, a pretested questionnaire was sent to all CMT2 in the sector covered by University College London (UCL) partners. The total number of eligible trainees was 88. Thematic analysis was applied to qualitative data.

RESULTS

The survey was completed by 53 trainees (60.2%). While the vast majority of the CMT2s (88.7%) completed the Membership of the Royal College of Physicians (MRCP) exam, 25 (28%) revealed that they had insufficient confidence to become registrars. This confirms the previously reported finding that a positive relationship between competence and self-perceived confidence is often absent[3].

The trainees expressed concerns across a wide range of clinical and non-clinical domains. It appeared, however, that practical procedures constituted the major area of lack of confidence, followed by managing cardiac arrest calls, running outpatient clinics and responding to referrals from other specialties. The trainees primarily blamed the low volume of exposure to these activities during the training programme. This resembles the association of the lack of confidence with 'low volume/high impact' clinical activities described by Kneeborn[4].

The majority agreed that their job was more of a 'service provision', as opposed to being a training one reflecting that the CMT2s are rather distracted by jobs which are less suited for them. The lack of flexibility of placements and inadequate exposure to certain specialties was considered by many trainees as another important reason behind their insufficient confidence.

TABLE 1:

The different suggestions proposed by the core medical trainees to improve their overall confidence.

Suggestion Themes
A period of 'acting up' as a Medical Registrar:
○ Opportunities to shadow registrars.
○ Encouragement to step up to fill registrar on-call shifts towards the end of CMT once full MRCP is obtained.
More opportunities to achieve confidence in specific areas:
○ More free courses aimed at practical skills.
○ Fixed Leave/time out of work to improve confidence in certain skills.
○ Protected, allocated and compulsory clinic time across all rotations.
Improving and reforming CMT teaching:
○ Incorporating simulation training.
○ More practical teaching in protected teaching sessions.
Service and placement rearrangement:
○ Incorporating specific mandatory placements into the CMT programme that would allow building up confidence in generic skills (ITU, Acute Medicine, Renal).
○ CMT2s to have more junior doctors doing the basic ward jobs.
Others
○ Regular consultant and registrar feedback during the medical take.
○ CMT2s to be recognized as preparing to become registrars and not as junior doctors.
○ More clear definition of roles on the ward (CMT trainees versus Foundation doctors).

The recommendations made by the CMT2s are summarised in **Table 1**. The primary suggestion was a period of shadowing or 'acting up' as medical registrars and greater opportunity to take referrals during the acute take. This suggestion remains plausible particularly as the concept of shadowing of near peers has been successfully used at lower-level transitions (such as students shadowing foundation doctors) and was proved to enhance preparedness levels[5]. Alternatively, the trainees felt that simulation teaching could be a good compromise. In addition, the trainees expected to have more opportunities to improve their confidence in specific areas by taking 'time out' through fixed leave or allocated slots. Others suggested full rearrangement of the service and the CMT rotations by having more juniors (foundation doctors) to which tasks could be delegated. They believed that this should be combined with clearly defined roles of the CMT2s, as well as separation from the roles of foundation doctors and GP trainees, who are less committed to medicine. Although a few CMT2s indicated that they would be more satisfied with an extension of the CMT, this was challenged by the majority of the trainees.

CONCLUSION

This survey highlighted a number of areas of insufficient confidence and generated relevant solutions. However, further in-depth studies are required to explore the methods of implementing these recommendations.

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A PILOT OF THE USE OF VOICE RECOGNITION SOFTWARE IN AN ENDOCRINE OUTPATIENT CLINIC

Editor,

Voice recognition software (VRS) has increasingly been utilised to document clinical care, typically within an electronic health care record and often with the use of 'templates'. This software has been purported to enhance doctor efficiency, reduce costs and improve patient care[1]. The aim of the current pilot was the mandatory adoption of VRS embedded into electronic clinical documentation within a new patient endocrine clinic.

METHODS

Dragon Medical Practice Edition 2 speech recognition software manufactured by Nuance was installed onto a single office computer; a run in period of two months was required to optimize user dictation. Prior to clinic attendance, each patient had a voice activated clinic template note constructed online within Patient Center. The online medical note was then re-opened and typed in real time during the patient consultation. Once constructed, the outpatient note was reviewed, formatted (by typing and/or VRS) then authorised with an electronic signature.

RESULTS

Data from 24 consecutive medical notes were collected before and after the implementation of VRS. The use of VRS resulted in all of the outpatient medical notes transferring to an electronic/online version. The setup time for VRS was one minute per clinic letter, the existing process did not require any set up time. The total time allocation per clinic visit was similar (n=25 minutes) per patient for both processes (included obtaining a history, examination, medical note documentation and discussion with the patient). VRS improved the number of clinic letters appearing on NIECR on the day of clinic attendance (24 v 2, p=0.01) in comparison to the existing process. There was an improved mean turnaround time with VRS from day of clinic to the completion of clinic letter (7 v 25 days, p=0.01) appearing on NIECR in comparison to the existing process. Total clinician online medical note typing time was 7 minutes per patient in comparison to the existing process which did not require any time for clinician typing. The mean dictation time for the existing process per clinic letter was 1.5 minutes in comparison to 3 minutes using VRS. One new patient clinic (n=6 patients) resulted in savings in secretarial transcription time on average 30 minutes per clinic session.

DISCUSSION

Current upgraded versions of VRS have allowed the transcription of speech into written text with speed and accuracy[2]. The use of VRS enabled the process of construction of the electronic outpatient clinical note into a single step and resulted in 'same day letters', improved turnaround time and subsequent accessibility of clinic letters. The online letters could be accessed remotely and out of typical working hours if required. Advantages of the use of VRS include reducing errors in dictation and in illegible handwritten notes. Disadvantages commonly encountered are lack of accuracy and misinterpretation. The use of the software can be time consuming initially and prone to errors with background noise[3]. VRS has the potential for additional roll out in other outpatient settings and in streamlining and easing the burden of the written outpatient clinic note.

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'THE USE OF THYROID ULTRASOUND BY NON-RADIOLOGISTS FOR THE ASSESSMENT OF THYROID NODULES'

Editor,

INTRODUCTION

In the UK and Ireland, the use of thyroid ultrasound (US) for the assessment of thyroid dysfunction, thyroid nodules and follow up of thyroid cancers is typically performed by a radiologist or a trained sonographer. The majority of thyroid nodules will be benign, however significant resources can be utilized in the investigation of thyroid nodules, often with unnecessary surgical treatment, this has implications for cost. In 2014, the BTA (British Thyroid Association) introduced the ultrasound 'U' classification to rationalize the use of thyroid ultrasound in the assessment of thyroid nodules. They suggested standards for reporting, and indications for FNA (fine needle aspiration) based on a US scoring system U1-5, as well as appropriate follow up based on these US findings[1]. More recently in some centres, trained endocrinologists are increasingly performing routine diagnostic ultrasonography in the management of thyroid disease, often in the context of 'one stop' thyroid nodules clinics.

ACCREDITATION

In the UK, obtaining accreditation for endocrinologists is through the BTA and the RCR (Royal College of Radiologists), through participation in a curriculum for training in neck ultrasound. Support is also provided from the Society for Endocrinology and approved by the Royal College of Physicians. The training program is recommended for specialty registrars and endocrinologists who manage thyroid disease and thyroid cancer. Participants complete a mandatory one day course in London (fees: £300 for consultants, £250 for trainees/registrars), which comprises of lectures on the theory, principles and practice of ultrasound with a practical 'hands on' workshops on how to perform thyroid ultrasound and FNA. For Level 1 certification, applicants should complete a log of 50 scans and a minimum of 200 cases with supervision from a consultant radiologist competent in thyroid US. For level 2 certification at least one scanning session per week is required, with an additional 120-200 cases over a further 6 months. A level 3 practitioner can mentor and supervise level 1 and 2, conduct research and teach thyroid ultrasound at all levels.

POSITIVES AND NEGATIVES

Purchasing an ultrasound machine can be expensive and demonstration of cost effectiveness is often required to confirm overall value. The process of obtaining certification can be time consuming and would only be recommended if there is a reasonable volume of thyroid cases reviewed on a yearly basis. Finding a supervising radiologist to assist with certification is another consideration, as is the perceived 'removal of business' from radiology colleagues. The use of thyroid ultrasound is relatively inexpensive, non-invasive and accurate in describing thyroid morphology and is a useful adjunct to the clinical exam[2]. In addition, its use by endocrinologists can expedite diagnoses and ease the burden of imaging on radiology colleagues.

SUMMARY

Obtaining certification in the use of thyroid ultrasound can be timely and expensive for endocrinologists. There is a clear pathway in the UK as to how this can be achieved. Once established, thyroid ultrasound embedded within a thyroid clinic has the potential to improve and streamline the investigation and management of thyroid nodules.

Key words: endocrinologists, thyroid ultrasound, accreditation, thyroid nodules

The authors have no conflict of interest

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2. Tan GH, Gharib H. Thyroid incidentalomas: management approaches to non-palpable nodules discovered incidentally on thyroid imaging. *Ann Intern Med*. 1997; **126(3)**: 226–31.

ERRATUM:

The editor has been informed that there is an error in the following paper:

Outcome of primary rhegmatogenous retinal detachment surgery in a tertiary referral centre in Northern Ireland — A regional study. Ulster Med J 2017;86(1):15-19.

The third author's name should be corrected to Giuseppe Casalino

We apologise for any inconvenience caused.