

Abstracts

88th USIM Meeting: Sir Samuel Irwin Lecture Theatre, Friday 19th October

Royal Victoria Hospital



PROGRAMME:

- 2.00 pm A Study in Syncope: A review of 94 tilt table tests.
M Monaghan, M McCarron, J Purvis, Depts of Cardiology and Neurology, Altnagelvin Hospital, Western HSC Trust.
- 2.15 pm Identifying insults: automated AKI detection within a hospital population.
P. Stirling, F. McCarroll, R. Mullan, R. Cunningham, M. Ryan, C. Harron
Renal Unit and Dept. of Biochemistry, Northern HSC Trust, Antrim,
- 2.30 pm Successful Implantation of a CoreValve Evolut in a 89-year old with a degenerated Toronto Stentless Porcine Valve (T-SPV)
S Fairley, G Manoharan, M Spence .Cardiology Department. Belfast HSC Trust
- 2.45 pm Audit of Diabetes Management Following Renal Transplantation
CJ Hill, AE Courtney. Regional Nephrology Unit, Belfast City Hospital
- 3.00 pm Guest Lecture: "Update in Rheumatology" Dr Philip Gardiner, Consultant Rheumatologist, Western Trust
- 3.30 pm Afternoon Tea & AGM
- 3.50pm Radiation Exposure reduction during Transcatheter Aortic Valve Implantation (TAVI) Procedures.
A. Ramsewak, D. Sharma, S. O'Connaire, R. Verghis, G. Manoharan and M. S. Spence. Belfast Health and Social Care Trust, Belfast, UK.
- 4.05pm An unusual presentation of Hip Pain
T Wazir, E Walker, S Quah, M McHenry. Rheumatology unit, Musgrave Park Hospital and GUM clinic Royal Victoria Hospital Belfast HSC Trust.
- 4.20pm Closing the therapeutic gap in patients with low vitamin B12 levels.
LJE Walker, Mid-Ulster Hospital. Magherafelt.
- 4.35pm Presentation of prize for best abstract
- 4:40pm Guest lecture: "Update in Cardiomyopathy"
Professor Pascal McKeown, Inherited Cardiac Diseases Clinic, Belfast Trust.

A STUDY IN SYNCOPE: A REVIEW OF 94 TILT TABLE TESTS

M Monaghan, M McCarron, J Purvis. Departments of Cardiology and Neurology, Altnagelvin Hospital, Western HSC Trust, Londonderry.

Recurrent syncope (RS) and postural tachycardia (POTS) can be difficult to diagnose and treat effectively. A tilt table test (TTT) provides orthostatic stress whilst heart rate (HR) and blood pressure (BP) are measured. We reviewed 94 TTTs performed over 6 years to assess the usefulness of this investigation.

Altogether, 27 males (29%, average age = 36) and 67 females (71%, average age =33) underwent TTT. Under-18s comprised 20% of the population. 12% of studies were requested by Neurology.

SYNCOPE: 59 tests were performed (average age =39, 71% female). 29 tests (48%) were positive plus 2 patients had epileptic seizures. Of those with positive TTTs; 19(68%) commenced Midodrine, 4(14%) received advice, 3(11%) commenced Fludrocortisone, 1(3%) commenced scopolamine patches and 2(7%) required pacemaker.

Amongst patients with negative tests; 2 were diagnosed with POTS due to inappropriate HR rise, and 2 with fast HR throughout were diagnosed as Inappropriate Sinus Tachycardia (IST).

POTS: 35 tests were performed (average age =25, 74% female). 18 tests (53%) were positive and 1 patient was diagnosed with postural cerebral hypoperfusion following onset of headache on TTT. Of those with positive result; 8(44%) received advice, 6(33%) commenced Midodrine, 2(11%) received Fludrocortisone, 1 commenced Bisoprolol (for postural palpitations) and 1 commenced Clonidine (for hyperadrenergic POTS – raised BP on standing).

Two patients with negative tests were diagnosed with IST due to elevated flat HR response.

CONCLUSION: TTT can serve as a useful guide to diagnosis and treatment in both recurrent syncope and POTS.

IDENTIFYING INSULTS: AUTOMATED AKI DETECTION WITHIN A HOSPITAL POPULATION

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Introduction: Acute Kidney injury (AKI) remains an important cause of inpatient morbidity and mortality. National enquiry has shown identification and management of AKI to be suboptimal.

Objectives: This study sought to explore the practicalities of hospital population screening for AKI using an automated lab-linked tool. Secondary aims were to observe the pattern of AKI presentation within the hospital and to observe correlation of defined AKIN (Acute Kidney Injury Network) stage on inpatient mortality.

Methods: An automated AKI detection tool was developed to screen all inpatient electrolyte samples on a specified date or current day. The tool created an alert for all patients who had shown a creatinine rise of ≥ 30 micromol/l against previous baseline values within the previous 30 days (including primary care values). Patients under the care of nephrology, intensive care and paediatrics were automatically excluded. The tool was interrogated on a daily basis over the course of the study and all alerts logged prospectively into a study database. Patient mortality, length of stay and renal referral rate were cross-referenced via patient admin system and a renal database respectively.

Results: Over the course of 17 days the tool identified 137 patients. 84.7% of Alerts met AKIN I standards, 11.7% meeting AKIN II and 3.6% meeting AKIN III. 20.4% of those patients identified showed progression of AKI during the study. Mortality rose with rising AKIN stage (15.5%, 37.5% & 80% respectively). Progressive or prolonged renal impairment (multiple AKI alerts) was associated with increased mortality and increased length of stay ($r = 0.41$, $p = 0.004$). Only 5.1% of those identified were referred to the renal specialty team, with an average delay from alert value to referral of 4.6 days. A substantial proportion of alerts occurred within the first day of admission (18.3%) and within the A&E and acute admission wards (27.7%).

Conclusion: We have demonstrated the effectiveness of an automated lab-based tool to improve AKI detection. Although these patients have high rates of mortality, only a minority are referred to the nephrology service. We plan to use this tool to develop a clinical alert system with the intention of reducing delays in the detection and management of AKI.

Successful Implantation of a CoreValve Evolut in a 89-year old with a degenerated Toronto Stentless Porcine Valve (T-SPV)

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Trans-catheter aortic valve implantation (TAVI) is an established treatment option for patients with severe aortic stenosis and excessive surgical risk. Early animal and clinical studies have shown promising results for the use of valve-in-valve TAVI (viv-TAVI) in the management of degenerative aortic bioprostheses (Bedogni et al, 2011). As re-do surgery carries increased risk, this technique offers a feasible treatment option in high-risk patients.

This case describes successful viv-TAVI implantation using the CoreValve Evolut system (Medtronic) in an 89-year old female with a severely regurgitant bioprosthetic aortic valve (Toronto stentless). The patient presented with decompensated heart failure requiring hospitalisation. The logistic Euroscore was 59% and conventional re-do surgery was deemed prohibitive. Therefore, viv-TAVI was considered the only feasible interventional strategy. This case describes one of the first implants of the new CoreValve Evolut (Medtronic) system.

After extensive pre-procedural imaging (transoesophageal echocardiography, aortography, CT), a 23mm CoreValve Evolut valve was implanted successfully via femoral approach under local anaesthesia. The procedure was technically challenging for numerous reasons: the native annulus was small in diameter, the coronary ostia were low in origin relative to the native valve leaflets, and the CoreValve Evolut system was excessively mobile during deployment due to the jet of 'free' regurgitation. The Toronto valve is a supra-annular stentless system, and in addition to absence of annular calcium, the traditional 'landmarks' used to aid valve deployment were absent.

The CoreValve Evolut system (Medtronic) is a safe and technically feasible option for patients with bioprosthetic valve regurgitation and prohibitive surgical risk.

REFERENCES

1. Bedogni F, Laudisa ML, Pizzocri S, Tamburino C, Ussia GP, Petronio AS, Napodano M, Ramondo A, Preitero P, Ettori F, Santoro G, Klugman S, De Marco F, Brambilla N, Testa L (2011). Transcatheter Valve-in-Valve Implantation Using CoreValve Revalving System for Failed Surgical Aortic Bioprosthesis. *JACC Card Int*; **4(11)**: 1228-34

AUDIT OF DIABETES MANAGEMENT FOLLOWING RENAL TRANSPLANTATION

CJ Hill, AE Courtney

Regional Nephrology Unit, Belfast City Hospital

Diabetic nephropathy is the most common cause of established renal failure in the UK. There is little evidence to guide diabetes management post-transplant. The aim of this audit was to assess the documentation and achievement of diabetes management targets in the Northern Ireland renal transplant population. All transplant patients with a recorded primary renal disease of diabetic nephropathy were identified from the regional renal data system (eMed,

Mediqa Health Informatics®). Audit standards for blood pressure, HbA1c and cholesterol were taken from the National Institute for Health and Clinical Excellence (NICE) type 1 and 2 diabetes guidance (target systolic pressure <140mmHg, target total cholesterol <4mmol/l, target HbA1c <7.5%). Documentation of these variables was assessed and other demographic, clinical and laboratory data was also collected. Fifty-two patients had a functioning renal transplant; 14 had a live donor, 28 a deceased donor and 10 had undergone simultaneous pancreas-kidney transplantation. The majority of patients had type 1 diabetes. Mean systolic blood pressure was highest in the SPK group (141mmHg) and lowest in the live donor group (128mmHg). Glycaemic control was poor in the deceased donor kidney only and live donor groups (mean HbA1c 8.4% and 8.5% respectively) but improved in the SPK group (5.78%). Renal function was worse in the deceased donor group (mean creatinine 153µmol/l versus 113µmol/l in the SPK group and 125µmol/l in the live donor group). Despite attendance at renal and diabetes clinics cardiovascular risk management remains suboptimal and innovative approaches are required to improve this in the post-transplant diabetes population.

RADIATION EXPOSURE REDUCTION DURING TRANSCATHETER AORTIC VALVE IMPLANTATION (TAVI) PROCEDURES.

A. Ramsewak¹, D. Sharma¹, S. O'Connaire¹, R. Verghis², G. Manoharan¹ and M. S. Spence¹. 1 – Royal Victoria Hospital. 2 – Clinical Research Support Centre, Belfast.

Belfast Health and Social Care Trust, Belfast, UK.

Aims: Trans-catheter aortic valve implantation (TAVI) is a procedure known to have a higher radiation dose compared to coronary intervention. In this single centre prospective analysis, we determined whether lower fluoroscopy and cine imaging settings would be safe while maintaining an acceptable image quality.

Methods: Data on radiation exposure was collected for consecutive patients undergoing TAVI. Using a single plane C-arm, the settings were changed from coronary to electrophysiology (EP), this resulted in a reduction for fluoroscopy, from 15 pulse-progressive fluoroscopy (ppf) to 3.75 – 7.5 ppf and for cine acquisition, from 15 frames per sec (fps) to 3.75 – 7.5 fps for access site management. We compared the radiation doses in this lower settings (LS) group with the standard settings (SS) group.

Results: Data for 68 consecutive patients was collected over a period of 11 months from the Royal Victoria Hospital, Belfast (see Table 1). The median dose area product using the standard setting was 10,210 cGy*cm² as compared to 6928 cGy*cm² for the lower setting group was statistically significant (p-value - 0.006). The screening time, procedure time and contrast were not statistically different. There were no procedural deaths or radiation burns in either group at 30 days follow-up.

Conclusions: This study demonstrates a safe and significant reduction in radiation dose of approximately 32% with the new settings while preserving acceptable image quality. However, radiation exposure still remains higher compared to percutaneous coronary interventions due to length and complexity of this procedure.

TABLE

	Standard	Lower	p-value
Total	34	34	
Male	11	15	
Age (years)	83	81	0.171
BMI	27.8	27.3	0.46
Radiation dose (DAP - Gy*cm²) (median)	10210	6928.5	0.006
Screening Time (minutes)	25	21	0.116
Procedure Time (minutes) (median)	118	115	0.314
Contrast volume (mls)	220	188	0.066

AN UNUSUAL PRESENTATION OF HIP PAIN

T Wazir, E Walker, S Quah, M McHenry. Rheumatology unit, Musgrave Park Hospital and GUM clinic Royal Victoria Hospital, Belfast HSC Trust

We present an unusual case of disseminated gonococcal (GC) septic arthritis with co-existent Chlamydia (CT) infection.

Case A 33 year old Caucasian woman presented with acute oligoarthritis affecting her left wrist and right hip. She had low grade pyrexia, synovitis in her left wrist, marked limitation of right hip movements with severe pain. Bed side ultrasound showed right hip effusion (1.38 cm). Her hip joint was aspirated and yielded 12 ml of cloudy fluid – gram stained microscopy showed leucocytes but no organisms were seen. Blood cultures and fluid cultured from right hip showed no growth. MRI excluded osteomyelitis. Patient “self collected” vaginal swab which tested positive for CT and GC by PCR. Right hip aspirate was positive for GC and negative for CT by PCR. She was treated for GC with IV ceftriaxone for 12 days followed by oral cefixime on discharge, with oral doxycycline for 14 days for CT co-infection. Partner notification was addressed. Follow up MRI and US showed much improvement. Test of cure for GC/CT was negative 3 weeks post treatment.

Discussion Gonococcal septic arthritis is rare in Western Europe. It is significantly less common than sexually acquired reactive arthropathy. This case highlights the importance of considering STIs as a potential differential diagnosis in acute oligoarthritis. Routine enquiry of sexual history may aid risk assessment. Nucleic acid amplification testing (NAAT), e.g. PCR, is highly specific for GC and CT. For GC, NAAT is significantly more sensitive than culture, but does not offer information on antibiotic sensitivity. Gonococcal

antibiotic resistance to penicillin, tetracycline and quinolone has increased in recent years. Ceftriaxone is the current recommended first line option for treating GC in UK and Ireland. Partner notification is essential to avoid reacquisition. Testing for STIs should be done before initiating empirical antibiotic for septic arthritis as suboptimal regime may mask diagnosis with partial response. In UK and Ireland, NAAT is readily accessible and self collected sampling makes tests simple to do in any healthcare setting.

CLOSING THE THERAPEUTIC GAP IN PATIENTS WITH LOW VITAMIN B12 LEVELS. (1)

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Unfortunately, delay in starting treatment with hydroxycobalamin (vitamin B12) for patients with low vitamin B12 results, is not uncommon. Untreated vitamin B12 deficiency, may lead to severe haematological and neurological complications.

Vitamin B12 therapy is cheap and effective, with little risk of adverse effects.

With the help of Dr Michael Ryan, Consultant in Biochemistry, I undertook a survey of all obtainable medical records of all patients with “rock bottom low” and a further

group with “low” vitamin B12 results, selected from 312 Mid-Ulster Hospital general medical patients’ results. 56 charts were obtainable for perusal.

Secretarial staff contacted general practitioners’ receptionists, to ascertain how many patients were receiving vitamin B12 therapy.

Outcome: 9 patients were found who were not receiving vitamin B12 therapy, as might have been expected. I wrote to the patients to alert them to call with their general practitioner, who was copied into correspondence, to have a repeat blood sample for vitamin B12 assay performed and to discuss starting replacement vitamin B12 therapy. A recent report identified a similar problem, but of greater magnitude, in patients with diabetes on metformin therapy. (2) The simple quality improvement exercise described, is transferable to any hospital facility.

Findings published in “Clinical Medicine” (1), forwarded to Trust’s governance department, to Dr Ryan.

REFERENCES

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