Issue 30

EMERGE Newsletter

July – September 2020

Emergency Medicine Research Group of Edinburgh & Resuscitation Research Group Newsletter

Alison has been awarded the British Empire Medal for her work on setting up the Rainbow Box Initiative!

During the pandemic Alison was a star at making sure the inpatients on the COVID-19 wards had basic essential items to feel comfortable during their stay, and the use of iPads to stay connected with their friends and relatives. This lead her to establish the Rainbow Box Initiative for which she has now been awarded the British Empire Medical.

Read more about Alison's achievement on Page 5

The ROTEM Study has been Published!

The ROTEM machine is a point-of-care device that completes a viscoelastic test to provide rapid information on blood clot formation. The results of which allow us to determine the exact quantity of platelets and clotting products that a patient with massive bleeding requires. Find out how this new device has supported traumatic injuries in ED on Page 4 of the newsletter.

Welcome our new Co-Director of EMERGE Professor James Dear!

The EMERGE team have been working with James for a number of years on toxicology-based studies such as MAPP2, SNAP, KRAKIL and POP2 and we are delighted to have him officially on board as part of the EMERGE team.

Read more about James on Page 5

The DKA Study is now Closed to Recruitment

The DKA Study was a multicentre, prospective single arm comparison of ßhydroxybutyrate levels in capillary and venous blood. EMERGE team supported the recruitment of DKA participants within the emergency department for the diabetic research team. The study is now closed but you can find out more on Page 2.

Quote of the Quarter

'Today's Accomplishments were Yesterday's Impossibilities'

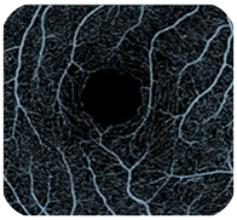
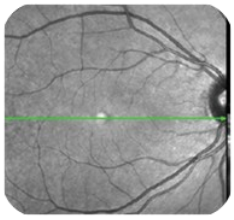
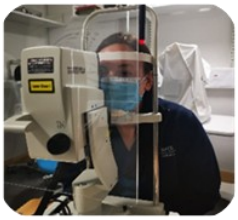
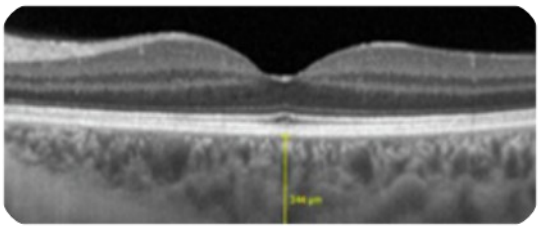
- Robert M Schuller

Assessment of Retinal Vasculature using Optical Coherence Tomography in Health, Hypertension and Kidney disease – OCT

By Emily Godden

This study is part of an ongoing academic project led by Dr. Dhaun (Bean), which combines retinal imaging techniques to examine choroidal and microvascular retinal structure to see if it has the possibility to reveal useful clinical information about patients with kidney disease. OCT is a simple, non invasive procedure and might add value in assisting diagnosis, assessing responses to therapy, and identifying patients at increased risk of Cardiovascular Disease.

Initial findings from the project were published by Balmforth et al 2016, which showed that Chorioretinal thinning in Chronic Kidney Disease is associated with lower eGFR and greater proteinuria. Since then the project has continued to grow; in July 2019, the renal team formed a collaboration with EMERGE and employed a renal research nurse to help co-ordinate the project. Now, with over 850 participants recruited to the study, we are aiming to see whether OCT measures could be useful in providing information on CKD progression, beyond that already provided by proteinuria and eGFR.

DKA is Closed for Recruitment

By Alison Williams

The EMERGE team have enjoyed working alongside the Diabetic research team for the DKA study. This was a multicentre, prospective single arm comparison of ßhydroxybutyrate levels in capillary and venous blood. We managed to recruit 14 participants in total.

The EMERGE team identified eligible patients that were in DKA or Ketosis. If the patient was happy to participate capillary and venous blood samples were collected concurrently from participants. Each participant had up to 4 capillary and one venous paired samples taken, no more frequently than every hour during their hospital admission and treatment. We were mindful of how unwell these patients were and clinical care was always prioritised. The response from patients was very positive with very few declines, despite most people were more than happy to take part.

Researcher of the Quarter has been Award to Dr Sean Krupej!

EMERGE would like to celebrate Dr Sean Krupejs awesomeness by awarding him our Researcher of the Quarter Award!

Our team have worked very closely with Sean over the last few months particularly with the COVID-19 research on the wards.

His commitment and positive attitude towards research has supported the recruitment of many patients and we are very thankful of this!


We would also like to give a special mention to Ross Murphy and Simon Dummer

EMERGE Study Information – HOW CAN YOU HELP?

Study	Clinical Presentation	Patient Group	How Can You Help?
IONA	Suspected Recreational Drug Use	• Patients aged 16 years old or over • Suspicion of novel psychoactive substances	Highlighting potential patients to the EMERGE team who will investigate further Ext 21315 or 21284 Highlight potential patients to the research team and hand out the study postcards when the research team are unavailable
KRAKIL	Acute Kidney Injury	• Patients aged 16 years old or over • Diagnosis of AKI	
lumiraDx NOVEL	D-DIMER or CRP required	• Patients aged over 16 years old • D-DIMER or CRP completed	
TARGET-CTCA	Suspected ACS	• Patients with troponin results between 5 and the 99th centile (Amber pathway)	

We are also working in the Royal Infirmary of Edinburgh on COVID-19 Study– see table below

Study	Study Question
BreathSpec	*Can COVID-19 be diagnosed via a breath sample?*
ISARIC Tier 0	*What is the patient journey and treatment for patients that are admitted and found to be COVID-19 positive?*
RECOVERY	*What drug is best used to treat someone with COVID-19?*
SIREN	*How do our immunity levels change when exposed to suspected COVID patients within the hospital?*

NOVEL Update

By Nicky Freeman

EMERGE have been working with the commercial company *LumiraDx* since April 2019 on the NOVEL study, testing an innovative, point of care, diagnostic device for cardiovascular conditions. For this study, we collect venous and capillary samples from participants to help develop this device, which then produces results for certain biomarkers such as CRP and D Dimer within 10 minutes. With the support of the clinical team across the ED, Surgical Observation Unit, AMU, and OPD6 the EMERGE team have recruited nearly 2000 patients so far.!

There are already a significant number of LumiraDx Platforms being used across the UK and Europe to test INR for anticoagulation patient management. More recently LumiraDx has developed the fastest, most sensitive COVID-19 antigen point of care test currently available, with a SARS-CoV -2 antibody test soon to be launched. To find out more, go to: https://www.lumiradx.com/us-en/what-we-do/diagnostics/test-technology/antigen-test

The ROTEM Study has been Published!

By Dr Matt Reed

Point-of-care viscoelastic tests such as rotational thrombelastometry (ROTEM) give us rapid information on blood clot formation, clot strength and clot breakdown. The results allow us to determine the exact quantity of platelets and clotting products that a patient with massive bleeding requires. ROTEM gives us near time, point of care results that allow treatment to be tailored to the patient's current clinical condition unlike conventional laboratory tests which lag behind and only tell us the situation in the patient up to one hour ago.

We have used ROTEM in the RIE ED since September 2010. During this time our experience with the technology has allowed us to develop an algorithm for the management of actively bleeding trauma and GI patients using a simple 5 minute ROTEM result.

Our recent paper in Trauma **[1],** reports the first published ED based ROTEM sigma algorithm for the management of emergency massive trauma and GI haemorrhage and details our Edinburgh ROTEM trauma experience. Between April 2016 and May 2019, 57 bleeding trauma patients underwent ROTEM testing. Mean age was 47 years and 77% were male. Eleven patients required massive transfusion (more than 10 units in 24 hours), 5 patients died in the ED and overall in-hospital mortality was 23%.

The median time from admission to conventional laboratory test result was 83 minutes compared to 51 minutes for a ROTEM A5 result. Trauma-induced coagulopathy was identified in 25% of patients using conventional laboratory tests compared to 39% using ROTEM. We concluded that our ROTEM Sigma based algorithm enabled a coagulation result to be obtained faster than conventional laboratory tests and led to earlier clinical intervention.

Reference: Spagnolello O, Reed MJ, Dauncey S, Timony-Nolan E, Innes C, Allen JMM, Williams MJ, Church N, Dunn MJG, Blackstock C, Nimmo AF. Introduction of a ROTEM protocol for the management of trauma-induced coagulopathy. Published Trauma September 2020; https://journals.sagepub.com/doi/abs/10.1177/1460408620957919

Meet Professor James Dear– the new Co-Director of EMERGE!

Dr James Dear is now one of our EMERGE co-directors, and here are his research interests;

"My overall objective is to improve the diagnosis and management of acute medical emergencies by understanding the role and clinical utility of circulating microRNAs. Less than 10 years ago their existence in the circulation was unknown – now microRNAs are recognized to provide a huge reservoir for disease biomarker discovery and a mechanism for signalling between cells that is amenable to therapeutic intervention. My research combines knowledge enhancement with a clear translational pathway that aims to improve health and develop diagnostic and therapeutic products with Scottish, UK and worldwide commercial partners. "

We'd like to welcome James as one of the leads, he's been a part of the team for many years and we look forward to the next chapter with him!

Alison has been Awarded the British Empire Medal!

In September, Alison received a very special email explaining that she would be on the Queens Honours List, and awarded the British Empire Medal for her services to the NHS and fundraising for the charity, Rainbow Boxes which she established during the pandemic.

Whilst caring for COVID-19 patients within Royal Infirmary of Edinburgh, Alison observed first-hand the effects of isolation on those being treated. With family and friends unable to visit, patients were being left with little or no basic toiletries or clothing. Moved to help these patients, Alison sent out a social media request for donations of pyjamas, toiletries and iPads to allow people to keep in touch with their families at such a difficult time.

The request went viral and the response has been overwhelming. After setting an initial fundraising target of £500, dozens of individual donations, over £15,000 and offers of support from RBS, Montpelier Group, Erskine Stewart's Melville Schools (amongst others) have now been received.

The requests for these essentials from wards across NHS Lothian are growing. Alison has now gathered a team of professionals around her who are volunteering to organise the donations and get them to the wards and patients who need them in a safe and coordinated manner allowing medical staff to focus on patient care on ensuring that wards are not clogged up with bags of donations. The initiative was named Rainbow Boxes, which now has charitable status.

When speaking to Alison about her award, she said; *'It is all quite overwhelming but extremely flattering to get this recognition. Rainbow Boxes couldn't have been sustained without the continuous support from Rachel and my tiny team of volunteers that did so much work behind the scenes to get these boxes on the wards as quickly as we did.'*

To find out more about the Rainbow Box Initiative, go to: https://rainbowboxes.org/

Research-focused Courses

Unfortunately at the moment the Wellcome Trust are unable to run research courses due to the COVID-19 pandemic however if you want to be research active and complete a Good Clinical Practice course, you can complete the free online RCEM or NIHR GCP courses (links below).

RCEM GCP Course: https://www.rcem.ac.uk/RCEM/Quality_Policy/Professional_Affairs/Research/RCEM/Quality-Policy/Professional_Affairs/Research.aspx?hkey=e822bd01-59ba-4003-9bdb-f9cc3e5a0474

The Royal College of Emergency Medicine

NIHR ICH-GCP Course: https://www.nihr.ac.uk/health-and-care-professionals/learning-and-support/good-clinical-practice.htm

Stroke Research Team

BRAIN-ED has finished recruitment!

Since returning to our normal research activity, BRAIN-ED has been actively recruiting in the ED, AMU, Stroke wards and DCN theatres. BRAIN-ED is a bio-resource research study looking at developing a novel biomarker which can help in the detection of brain tumours. Patients who present to the hospital with a neurological symptom and are assessed to go for a CT scan, are eligible for the study. Once consented, we complete a short questionnaire regarding their symptoms, a quick 60 second cognitive assessment and take one blood sample. We have now completed recruitment and 620 patients participated.

Thanks to everyone in the team for their support!

EMERGE are excited to continue our collaboration with Neurosurgery who have a variety of studies in the pipeline

Jess is completing a Diploma in Clinical Trials

In September 2020, I commenced part-time study for a Postgraduate Diploma in Clinical Trials at the University of Edinburgh. I'm looking forward to gaining further knowledge of the principles, science and design of clinical trials and critiquing current approaches in clinical trials. By completing the course, I hope to expand my knowledge of clinical trial management as the course is delivered online world-wide so I will learn different research practices from across the globe. I am very fortunate to have been successfully awarded funding support from EMERGE, the Neurosurgery endowment fund and Edinburgh Lothian Health Foundation.

Current Stroke Studies in the Emergency Department

Study	Clinical Presentation	Patient Group	How can you help?
ATTEST 2	Ischaemic Stroke	-Patients aged over 18 years old -Less than 4.5 hours after symptom onset -Male or non pregnant females	Highlighting potential patients to the EMERGE team who will investigate further
DASH	Intracerebral Haemorrhagic Stroke	-Patients aged over 18 years old - Confirmed intracerebral haemorrhagic - less than 12 hours onset	
LINCHPIN	Primary Spontaneous Intracerebral Haemorrhage (ICH)	-Patients aged over 16 years old - First ever ICH	
precious	Acute Stroke (Intracranial haemorrhage or ICH)	- Patients over 66 years old -Less than 24 hours after onset	Ext 21315 or 21284

SAVE A LIFE FOR SCOTLAND

Restart a Heart Day 2020

Our biggest day of the year might look a little different this time around, but it won't stop us from sharing the message that CPR save lives with as many people as we can! With no mass training events happening for public health reasons, many of the restart a heart day events from the Resuscitation Council UK will be moved online. They will include private online trainings, facebook live events, and a whole new section of the Save a Life for Scotland website dedicated to resources for all ages who want to learn about CPR. Check out what we have to offer and share with your friends! Just because we can't all get together this year doesn't mean you can't brush up on your CPR skills at home. Visit savealife.scot to learn more.

Save a Life for Scotland Throwbacks

In October we are celebrating our 5th anniversary by posting some of our favourite moments from the past few years on social media, watch the space, you might spot some familiar faces. This photo is from the Save a Life for Scotland Launch in Princes St Gardens featuring some life-savers you may recognise. On this day over 1,000 people were trained in CPR. We have now reached over 600,000 people through Safe a Life for Scotland and it wouldn't have been possible without this first day.

Midlothian Science Festival

We are contributing to the Midlothian Science Festival Schools programme this year with our CPR Kid Researcher resource. Check out the full programme to learn more about some great online resources to inspire the next generation of scientific explorers today!

https://buff.ly/32QjoXK