Reflection on the SHOT Annual Symposium: 10th July, 2013.

This year's SHOT Symposium took place at the Royal Society of Medicine, Wimpole St. London. Over 300 delegates attended on a beautiful, hot summer's day. Fortunately the venue provided a comfortable atmosphere and plenty of cold drinks to enable us to concentrate on the programme and network with colleagues old and new.

The 2012 SHOT Report and Summary are already on the Website along with the presentations. A very informative book of Abstracts of Presentations and Posters (which were of excellent quality) was provided to each delegate with space for reflection – a nice touch. www.shotuk.org

Morning Session:

An introduction to the latest Report was provided by Dr Paula Bolton-Maggs. Reporting had increased over 2011 but so had the number of avoidable errors – a pattern which prompted comments throughout the day on how to achieve a reduction in these. It was noted that one case of TA-GvHD and two cases of viral transmission were reported, the first for several years. Again it was evident that failure to correctly identify the patient at every stage of the process was still a major factor in IBCT despite evidence of training and competency. The necessity for good communication between all staff involved in the process was also identified and a review of the Human Factors contributing to error is being recommended in order to better understand, and prevent re-occurrence. This last point prompted the comment that a review of the UK Blood Transfusion Laboratory Collaborative has taken place and new (tougher) standards will be published later this year.

Main recommendations from this talk were the extension of zero tolerance to all blood samples, not just transfusion and the increased use and sharing of comprehensive Root Cause Analysis with SHOT.

Megan Rowley gave a presentation on two recent audits (Medical Transfusion and Pre-Transfusion Sampling). She gave an overview of the NCA and the audits completed over previous years. There has been some improvement in repeated audits such as Bedside Practice. Appropriate prescribing was commented on with respect to the Medical Use Audit and it was noted that TACO is a serious problem which is highlighted in the second part of this audit which is to be published soon. With regard to the Sampling Audit the large number of 'unknown' collectors was commented on from the floor with suggestions on how to ensure that staff identity is communicated eg. inclusion in national guidelines, use of staff number, rejecting requests where identity is unclear!!!

SHOT Lessons from Haemorrhage cases was Tony Davies's talk. He began with an overview of the NPSA Rapid Response Report and went on to describe how this had been implemented (or not) via audit of the North West Region of NHSBT and evidenced by the reports of delayed provision of blood to SHOT. Some of these were particularly distressing which reminded us of the human cost of getting it wrong. All cases of massive haemorrhage should be reviewed by HTC and reported to SHOT if delay in provision or other serious adverse event is identified. Another facet of massive transfusion was blood wastage 50% of which was estimated to be avoidable.

Point of Care Testing - Quality Control was addressed by NEQAS staff Dianne Kitchen who looked at TEG and ROTEM and Barbara De La Salle who covered Haemoglobin estimation. Apart from a very useful description of how TEG & ROTEM differ and what the graphs mean, the basic message was the importance of trained and competent operators using properly maintained instruments which have been quality assured to give accurate and precise results. The value of TEG/ROTEM was illustrated. A comparison between use of Blood Gas Analysers and Haemocue reported that both gave clinically appropriate Hb results under optimum conditions (instrument and operator!). An interesting question from the audience regarding the inclusion of continuous oximetry in POCT QC drew the response that as no blood sample was involved this was unlikely for the foreseeable future.

After a coffee break the Keynote Lecture **"Good Blood in Bad Places"** was delivered by **Dr Heidi Doughty** based on her extensive front line experience with the Territorial Army. This heavy subject began in a forthright fashion as the current military involvement in Afghanistan was described and how the management of combat casualties has developed over the last decade. Thankfully, Heidi knew how to relieve the tension of listening to hard facts with the inclusion of some very funny comments and remarks on the practicalities of practising emergency transfusion medicine beyond the 'blue-light' limits of a UK regional transfusion centre. The main points of her talk were the integration of transfusion support into the multi-disciplinary 'Damage Control Resuscitation' procedures and the need for a Plan B (eg to cope with Iceland volcano eruptions!). The incredible amount of experience being amassed on the battlefield has resulted in a reassessment of what is going on in trauma patients e.g. the importance of the endothelium and systems which affect it. Anticipation of biochemical disturbances in patients who are about to receive massive amounts of stored blood and the need for labs to keep up with the demand was discussed. However, the MHRA is still a force to be reckoned with e.g. in designing the safe transport of blood components from Birmingham on a three day trip through extreme temperature changes. This has been successfully managed and illustrates how the capability for transfusion support in far-flung combat areas is a combination of home and front line expertise. How much of this can be translated into the less well equipped and quality challenged NHS was summed up by a question from the floor regarding how, in peace time, can we get samples to be labelled properly! Another delegate asked about the use of Factor VIIa. The response was that it was not used routinely and that, in her opinion, early surgery to control bleeding was a better option.

There was an unashamedly tearful reaction from the speaker at the end of the presentation as she showed a slide of a serviceman who had 'come through' the system and said, "This is important!" We all felt the same ...

Dr Jecko Thachil followed this with **FFP is it ever indicated?** His humorous delivery succeeded in waking us up to the physiological and biochemical facts of haemostasis and how traditional use of FFP is often not appropriate given current understanding and the availability of alternative therapies including recombinant ADAMTS13 which is on the horizon. He outlined the reasons why FFP is still being used and his 'discussions' with clinical staff when he tries to convince them it is not required. He illustrated why Coagulation is now being understood in terms of a Cell-based model rather than the classic Factor based one and very nicely explained why giving red cells actually helps control bleeding by making more platelets available to the endothelium whereas just giving fluid reduces this effect. In his opinion the answer to the title question was 'No' concluding that Cryo was a better

option possibly followed by Fibrinogen concentrate. Fibrinogen is the key Factor and if clotting factors are required then PCC should be considered.

Afternoon Session:

This was divided into a very topical discussion of the 2-sample group check recommendation and a couple of interactive sessions.

2-sample group check: Implementation.

Experiences of implementing the **2-sample recommendation** were provided by **Dr Paul Kerr** from Exeter (implemented 2010) and **Dr Jane Keidan** from Kings Lynn (implemented 2000). The main points which were communicated from these talks were the need for adequate preparation before implementation including thorough education of clinical staff especially doctors! This was to combat the obvious temptation to take two samples at the same time and hide one until later. Both sites acknowledged that errors are as likely to come from trained as untrained staff the emphasis has to be not just on competency but understanding why correct procedure is important. Staff also need to understand that compliance with policy at all times protects them from litigation as much as the patient from harm and that taking two samples at the same time makes their position worse not better! Dr Kerr reported that the implementation in Exeter had been successful with no significant increase in O Neg usage, Lab workload or delay in provision of blood. They had ensured good communication including the creation of a podcast on the Intranet. WBIT rates had also fallen. Dr Keidan confessed herself to be very much a fundamentalist of the 2-sample doctrine. Based on the assumption that the risk of an ABO incompatible transfusion due to WBIT is 1:80,000 she could see no reason why this should not be embedded in local policy – including the need to take them at different times! There is now a vein to vein blood tracking system at Kings Lynn which has helped to improve patient safety but even this is not foolproof as was demonstrated when a WBIT was detected through the 2-sample process because of mis-application of the wrong printed label to a patient's sample! Her cry was for improved consistency in following policy and felt that even when the requirements for Electronic Issue were met completely that the 2-sample group check was still a valuable safety measure.

2-sample group check: the challenge in Paediatrics.

Margaret Slade, a BMS from Alder Hey Children's Hospital, Liverpool presented a very different view of the subject and described how they were preparing to implement the recommendations.

We were first given an overview of the special difficulties which paediatrics presents to blood sampling from the presence of several adults (relatives) around the baby at most times causing extra stress to the phlebotomist to the very varied home locations of patients referred to this specialist centre (Aberdeen to West Sussex) with no local results available. They performed a GAP analysis against the Guidelines and then Risk Assessed highlighted differences which were very few. They also reviewed their WBIT events and found that in Blood Sciences and Transfusion there were a total of 104 events out of 150,000 samples received (0.07%) which they perceived to be very low and in fact they had not reported a WBIT to SHOT for 8 years . For several reasons the neo-natal and paediatric sample is very precious, e.g. size of infant, behavioural problems, mean age of 3 years makes most of them difficult to explain / persuade and their reactions uncontrollably excessive.

Very often clinical requirements make 2nd sample unreliable or impossible, e.g. if already transfused after 1st sample. From the floor, heel pricks were suggested as an alternative but volume required was a factor in not doing this. In conclusion her view was that implementation would not be easy although they would aim to comply; it is possible but will take time; there will need to be a 'buy in' from the clinical staff.

Interactive Sessions:

One of the delights of meeting in the RSM (apart from the pastries on arrival) is the opportunity to play with the voting technology during the interactive sessions. This may be somewhat mediated by getting the answers wrong – but your vote is thankfully anonymous!

The first session was led by **Dr Hannah Cohen** and **Dr Catherine Chapman** who presented challenges to our knowledge of the adverse pulmonary effects of transfusion. We were asked to decide on whether a patient's condition following transfusion was due to TACO, TRALI or some other cause. It was very educational and as more information was provided the diagnosis appeared to become clearer although there were still some contributory factors and information which meant that an absolute cause could not be identified. This emphasised the need for as much information as possible to be given to SHOT so that the correct category could be applied to a report. The 'TACO' case was particularly informative with ISBT diagnostic criteria being questioned in light of actual SHOT Reports, resulting in a proposal to amend them. A comment from the floor also highlighted the need for care when applying the Paediatric formula when using g/L units for Hb as this will result in an erroneous result – I'm not aware that this has been pointed out anywhere else ...

The final session of the day was an interactive exercise in **Analysis of Root Cause** presented by **Chris Robbie** from MHRA and **Joan Jones**. Chris began by explaining that the purpose of SAE reporting is to identify avoidable error and that SAE categories are based on RCA rather than outcomes. He emphasised the need to identify causes of human error such as reason for distraction / loss of concentration and that effective CAPA needs to be related to the root cause with a reflective statement often being better than re-training etc when it is obviously an individual's momentary lapse of concentration. In a good RCA the contributory causes will also need to be addressed. In the interactive session we had to identify root cause and decide on effective CAPA ... the MHRA stance on how this should be implemented was at one point countered by Joan who commented on how difficult it is in the current resource deficient climate to find time and staff to commit to incident investigation and resolution. More comments followed from the floor which indicated that the lab environment is often somewhat different to the regulatory ideal. This was perhaps best summed up by a final comment from Bill Chaffe who suggested that this presentation shouted out the need for Capacity Planning to formally highlight the adequate staffing and other resources for the extra work required. Those who were left in the auditorium saluted this brief suggestion of hope!

This was another very enjoyable, friendly and informative SHOT meeting which, along with the annual report and other learning material provided will take some digesting.

Graham Oakes.
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