more accurately assess the amount of antibody that may be transferred to the neonate and may, in turn, allow better prediction of severity of HDFN.³

This study assessed an ELISA-based commercial kit to see if it could accurately capture polyclonal anti-D from donor samples but found it had been developed to target only the first extra-cellular loop of the RhD protein and therefore, would be unsuitable for use in quantification of anti-D in patient samples.

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TIME-OF-FLIGHT MASS SPECTROMETRY IN THE DIAGNOSIS OF HAEMOGLOBIN KENYA

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Haemoglobin (Hb) variants are routinely detected by electrophoresis and high performance liquid chromatography (HPLC) in clinical laboratories. However, further molecular testing is often required to achieve a diagnosis. For rare variants molecular analysis may involve investigation of both the α - and β -globin gene clusters, as well as multiple techniques to detect point mutations and gene duplications or deletions. Time-of-flight (TOF) mass spectrometry is used as a secondary test in our laboratory to guide molecular analyses, saving both time and money. We present a case of Hb Kenya, a rare variant not typically seen in our patient population. Hb Kenya is associated with hereditary persistence of fetal haemoglobin (HPFH) and is the product of a $\gamma\beta$ fusion gene arising from abnormal crossing over during meiosis. This variant is not easily diagnosed by routine haematology or genetic methods and may be confused with other disorders. TOF mass spectrometry was used to identify the variant mass, enabling appropriate molecular testing to be designed for confirmation of the diagnosis. This case highlights the utility of TOF mass spectrometry for haemoglobinopathy and thalassaemia investigations.

ATYPICAL PRESENTATION OF IGA-RELATED IMMEDIATE REACTION WITH BACK PAIN AND RELATIVE HYPOTENSION – ANAPHYLAXIS OR NOT?

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Anaphylactic transfusion reactions are rare occurring in approximately 1 in 50,000 red cell transfusions.¹ One aetiology includes the development of antibodies against transfused IgA in patients with severe IgA deficiency. Diagnosis of IgA-related anaphylaxis involves the measurement of IgA levels and anti-IgA antibodies.² Recently, the evidence underlying this entity and the causal relationship between laboratory tests and clinical manifestation has been questioned.³ We describe a case of a 50-year-old man with chronic anaemia with an infected enterocutaneous fistula. He received six red cell transfusions where he developed severe back pain and relative hypotension within 15 to 30 minutes of transfusion, settling after transfusion was ceased. He was afebrile with no respiratory, dermatological or gastrointestinal manifestations typical of anaphylaxis. Direct anti-globulin test was negative, and blood cultures were sterile. Tryptase taken 2.6 hours after symptom onset was raised 16 $\mu\text{g/L}$ (0.0–11.4 $\mu\text{g/L}$). IgA level was <0.10 g/L (0.80–4.40 g/L). Anti-IgA titre was 400 U/mL (0–7 U/mL). IgA deficient components were prepared pre-operatively. He subsequently received three washed red cells uneventfully, one during a laparotomy for the enterocutaneous fistula.

This case describes an atypical presentation of a rare but important complication of blood transfusion, as well as the diagnostic process and subsequent management.

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AUDIT OF BONE MARROW BIOPSY REPORTS SUBMITTED TO A MYELODYSPLASTIC SYNDROME REGISTRY

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Background: Reviewing a diagnosis of myelodysplastic syndrome (MDS) is challenging due to variability in morphological description and report content. Improved concordance in diagnosis may be achieved by adhering to morphological requirements based upon WHO classification criteria,¹ and by following structured reporting guidelines.

Aim: We reviewed bone marrow biopsy reports submitted to a pilot Myelodysplastic Syndromes Registry (MDSLink) to confirm accuracy of diagnoses based on morphological description, according to WHO 2016 criteria.¹ We also audited report content according to the RCPA Bone Marrow Specimen Structured Reporting Protocol.²

Results: Out of 59 bone marrow biopsy reports reviewed, four (~7%) cases did not describe morphological features consistent with the stated diagnoses based on WHO diagnostic criteria. Quantitative assessment of reported dysplasia (>/<10%) was infrequently provided, with qualitative terms more commonly used. Fifty-three reports complied with RCPA structured reporting guidelines, but six (~11%) omitted details regarding trephine length, iron stores or presence and proportion of ring sideroblasts. WHO disease subtype was provided in all cases, but ICD-O code was rarely included (~8%).

Discussion: Reporting of morphological features in MDS according to WHO criteria in a structured format based on published guidelines allows objective confirmation and standardisation of MDS diagnoses, and identifies areas for improvement.

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DOAC STOP USE IN REAL LIFE – A SINGLE CENTRE VALIDATION STUDY

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Background: DOAC STOP (Haematex Research, Sydney) is an activated charcoal based agent that absorbs all commonly used direct oral anticoagulants (DOACs) from plasma, enabling assessment of underlying coagulation.¹ There is limited data on the effect of DOAC STOP on less common factor assays and on true positive lupus anticoagulant (LA) tests.²

Method: A local validation study of DOAC STOP was undertaken at Sullivan Nicolaides central laboratory (Bowen Hills, Queensland). Efficacy in eliminating dabigatran and rivaroxaban was assessed by comparing anti-Xa assays and TCT pre and post DOAC STOP ($n=7$). Common coagulation assays, extended factor levels and prothrombotic screen were tested pre and post DOAC stop in normal samples ($n=43$). LA testing was performed pre and post DOAC STOP in patients with known LA positivity ($n=10$).

Results: DOAC stop effectively removed dabigatran and rivaroxaban. There was no major difference (>10%) in any of the assays pre and post DOAC stop. All 10 samples with detectable LA remained detectable after treatment with DOAC STOP.

Discussion: This is the first study reporting the stability of less common factor assays with DOAC STOP. Results suggest that DOAC STOP does not abolish detected LA results, therefore providing a valid method for detecting LA whilst on DOAC therapy.³

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USE OF MULTIDIMENSIONAL FLOW CYTOMETRY PLOTS TO IMPROVE MEASURABLE RESIDUAL DISEASE MONITORING OF ACUTE MYELOID LEUKAEMIAS

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Background: Acute myeloid leukaemia (AML) is a haematological malignancy with a prevalence of ~1.5%.¹ Improved AML management requires increasingly sensitive measurable residual disease (MRD) detection, by either molecular or flow cytometric methods.² We hypothesised that the effect of phenotypic changes, a well-known feature of AML, on multiparameter flow cytometry MRD (MFC-MRD) analysis can be minimised by using multidimensional radar plots.

Methods: We created a novel MRD analysis template using multidimensional radar plots (Kaluza software). The analysis method was validated with 80 consecutive MFC-MRD samples, followed by a testing cohort ($n=36$).

Results: The two MRD methods showed a moderate correlation ($k=45\%$) with no statistically significant difference ($p=0.21$). Nineteen tests were positive using the radar plot method and negative with our current method. 14/19 (74%) had low-level MRD, between 0.01% and 0.1%. Molecular results were available for 36/116 cases only showing a slight correlation ($k=15\%$; $p=1.0$).

Discussion: Moderate agreement between the two MFC methods suggest the radar plot method is fit for purpose. Discrepancies can partially be explained by increased sensitivity of molecular tests. Other possible confounding factors include leukaemic subclones and treatment-related phenotypic changes.³ We are currently conducting a prospective MRD study to better understand these findings.

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