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Mucin 5AC (MUC5AC) is a secreted gel-forming mucin which is expressed by mucus producing cells of several organs but can also be found in cancer cells of the ovary, pancreas, and gastrointestinal tract. This study aimed to characterise the expression of MUC5AC in different ovarian cancer types and its potential prognostic implications. MUC5AC expression was analyzed by immunohistochemistry on a tissue microarray containing 603 ovarian cancers. MUC5AC was commonly expressed in mucinous (27/36; 75%) and endometrioid (12/39; 31%) carcinomas, whereas malignant mixed Mullerian tumours (2/27; 7%), high-grade serous (20/373; 5%) and clear cell carcinomas (1/28; 4%) were only rarely MUC5AC positive and also showed lower expression levels. MUC5AC positive endometrioid carcinomas and high-grade serous carcinomas lacked lymph node metastases ($p=0.0495$ and $p=0.0216$) suggesting a more favourable prognosis. In summary, the results of our study show that MUC5AC expression is associated with mucinous and endometrioid ovarian carcinomas and lack of nodal metastases.

EVERYONE COUNTS: A RETROSPECTIVE COHORT STUDY EVALUATING SAFETY OF EXTENDING PRE-TRANSFUSION COMPATIBILITY TESTING (PTCT) INTERVAL

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Aim: To investigate the safety of extending the PTCT interval from 72 hours to 7 days in haematology patients receiving PRBC. We hypothesise that the rates of transfusion reactions will be similar before and after the change.

Method: All haematology patient transfusions from July 2017 to June 2019 were exported from blood management software eBlood. A total of 2079 units were analysed from 227 patients. Prior to 1 July 2018 transfusions had a 72 hour PTCT interval. Post 1 July 2018 transfusions were eligible for 7 day PTCT interval. The primary outcome was the incidence of transfusion reactions.

Results: There were 6 (0.29%) transfusion reactions across the study and all were acute (<24 hours from transfusion). These reactions occurred within the post-protocol change cohort (0.69%), although all had a PTCT interval of <72 hours. No reactions occurred within the pre-protocol change cohort.

Discussion: This study found no evidence for an increased risk of transfusion reactions associated with increasing the PTCT interval from 72 hours to 7 days. Extending the PTCT interval has the potential to decrease physical and human resource burden, decrease patient infection risk, improve patient comfort and conserve public health resources. More research is needed to further validate the safety of PTCT extension.

A MOLECULAR ALTERNATIVE TO MEASURING THE MONOCYTE INDEX FOR PATIENTS WITH COMPLEX TRANSFUSION NEEDS

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Background and Aims: The monocyte monolayer assay (MMA) provides a tool for evaluation of the significance of rare or complex antibodies by counting the uptake of antigen-positive RBC sensitised by patient's plasma. Due to the operator-intensive nature of the assay, we investigated monocyte activation at the molecular level to evaluate alternative readouts.

Methods: RNA was isolated from PBMC exposed to RBC sensitised with anti-D [monocyte index (MI) 44%]; anti-K (MI 25%); anti-Ch (MI<3%); anti-JMH (MI<3%). RNA was used for cDNA synthesis, pre-amplification and RT-PCR of 48 genes involved in activation, signalling and immune response using TaqMan Gene Expression Array Cards (Applied Biosystems). Gene expression was compared to media controls (one-way ANOVA with Dunn's post-test; $p<0.05$).

Results: Exposure to sensitised RBC resulted in upregulation of genes involved in cell adherence (*CD9*, *ICAM-1*), cell recruitment (*CCL4*) and immune regulation (*IL-1A*, *TNF*) regardless of MI. High MI was associated with differential upregulation of CD32 driven receptor binding (*FCGR2C*), cytoskeletal arrangement (*RHOA*, *RAC-1*) and chemotaxis (*CCL3*, *CCR5*).

Conclusions: These data suggest that read-outs based on receptor binding (*FCGR2C*), cytoskeletal arrangement (*RHOA*, *RAC-1*) and chemotaxis represent an alternative for evaluation of MI, rather than counting phagocytosed RBC.

ENZYME-LINKED IMMUNOSORBENT ASSAY (ELISA) FOR ANTI-D QUANTIFICATION

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Antibody screening is performed in all pregnant women in Australia to identify clinically significant red cell alloantibodies. High antibody quantification levels can indicate that the pregnancy is at higher risk of haemolytic disease of the foetus and newborn (HDFN).

Enzyme-linked immunosorbent assays (ELISA) have previously been described as a method of anti-D quantification but in the past, have required the use of sensitised red blood cells (RBC).¹ There are now commercially available plates that have wells precoated with the RhD antigen, alleviating the need for RBC. This method of testing is specific for IgG, the only immunoglobulin to cross the placenta, whereas the current Astoria method does not discriminate between IgG and other anti-D immunoglobulins, including IgM.² ELISA-based testing may

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 extracellular 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