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Histocompatibility & Immunogenetics

UK NEQAS for H&I's Interpretative Educational Scheme – 2017 results from the UK and Ireland H&I Laboratories

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Introduction

UK NEQAS for H&I offers 20 H&I EQA schemes to over 300 participants worldwide, including 23 H&I laboratories in the UK and Ireland.

Traditional sample-based EQA schemes provide comparison of test results and not result interpretation or clinical advice. For transplantation, multiple H&I test results have ben be interpreted to develop an individual immunological risk stratification for each transplant. Results are often not definitive and clinical advice will vary depending on centre protocol, experience and risk appetite.

Therefore, to complement existing sample-based schemes an interpretative educational scheme was introduced in 2013 to allow labs to compare result interpretation and clinical advice. Three clinical scenarios are distributed yearly covering solid organ, haematopoietic stem cell transplantation (HSCT) and platelet/transfusion immunology. Scenarios are based on real patient cases.

Each scenario provides laboratory test results and relevant clinical information. The cases require result interpretation and affirmed clinical decisions/clinical advice. Responses are not assessed, but anonymised and shared with other participants. Here we present the findings from the 2017 scenarios.

Solid Organ Transplantation

A scenario covering cardiothoracic transplantation was distributed. 20 labs from the UK and Ireland reported results.

A cardiac donor was offered with a choice of seven ABO compatible patients. Luminex SAB results were provided and a date of the last sample for each patient given. 17 labs chose the same recipient (see Figure 1). Labs based their choice on ABO match, HLA antibody negative and risk level I according to CTAG Guidelines.

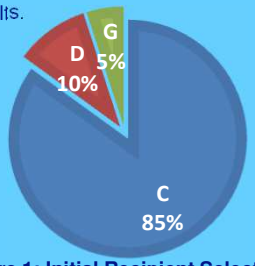

Figure 1: Initial Recipient Selection

Other recipients were not selected due to high donor specific antibodies, not an ABO match, good chance of finding alternate donor and risk level III according to CTAG Guidelines

For a clinically urgent cardiac patient with five potential donors, all labs selected a contraindication/high risk for two donors with cMFI >5000 and all stated low/standard risk for a donor with no DSA. For a donor with a proven 'denatured' DSA ten labs selected low risk, four medium and one contraindication. For a donor with DSA <5000 cMFI, ten labs selected medium risk and nine high risk.

TRALI Investigation

A scenario posing a Transfusion Related Acute Lung Injury (TRALI) investigation was distributed. 12 labs from the UK and Ireland reported results, only two of which provide TRALI investigation as a clinical service.

An AML patient was referred for investigation of TRALI. From the provided patient clinical details, HLA and granulocyte antibody test results from three blood donors, all labs concluded the results support the diagnosis of TRALI attributed to Donor 3. All labs stated that they would perform monoclonal antibody immobilisation of granulocyte antigen test (MAIGA) to confirm the presence of HNA antibodies.

All labs would also resign Donor 1 and 3 from donating any product/therapeutic donations or limit to red cell products only due to the presence of HLA and/or HNA antibodies.

Stem Cell Transplantation

19 labs from the UK and Ireland reported the haematopoietic stem cell transplant (HSCT) scenario which covered adult unrelated bone marrow donor selection.

Briefly, an adult AML CMV positive patient required HSCT. From provided unrelated donor search results with no clear 10/10 HLA 2nd field match, ten labs selected the same donor as their first choice, see Figure 2. Donor information included some 'high resolution' HLA typing results and donor characteristics (age, gender, blood group, CMV serostatus), which are all factors used in unrelated donor selection.

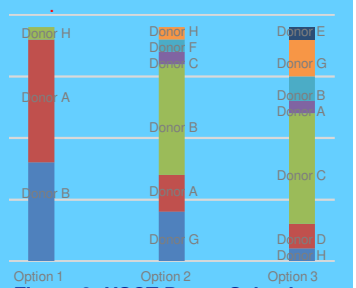

Figure 2: HSCT Donor Selection

When a 9/10 DRB1 and CMV mismatched donor was identified, 14 labs (74%) would not recommend using this donor based on danger of CMV reactivation, HLA mismatch, and the patient was considered high risk due to age and disease. 17 labs (89%) would recommend investigating alternative donor transplant options such as looking for a haploidentical donor or a cord transplant.

When provided with details of three haploidentical family members (a brother, a son and a daughter), 12 chose the same haploidentical donor, see Figure 3. Some of the reasons listed for selecting the daughter over the other options include that she is young, CMV matched and has an activating KIR 'B' haplotype which protects from relapse. Interestingly, although the patient has DP antibodies these were considered low risk.

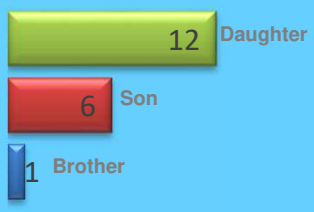

Figure 3: Haploidentical Donor Selection

Labs were asked that if the transplant did proceed with the daughter as donor which post-transplant monitoring they would perform. Most answered chimerism analysis and HLA antibody screening.

Comment

The cases allow comparison of clinical decision making between centres and have been reported by up to 87% of H&I labs in the UK and Ireland.

Some aspects of the cases have shown excellent agreement, e.g. selection of a Cardiac recipient and confirmation of TRALI. Other aspects e.g. HSCT donor selection have showed more variation. This variation is likely to be due to different centre policies, risk appetite and experience.

The scenarios aim to improve quality in H&I by identifying difference in clinical practice that could affect patient care.

Full information on all UK NEQAS for H&I schemes is available at www.neqashandi.org.uk or contact the Scheme Manager at ukneqashandi@wales.nhs.uk

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