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Histocompatibility & Immunogenetics

UK NEQAS for H&I's Interpretative Educational Scheme - 2016 results for UK and Ireland Laboratories

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Introduction

UK NEQAS for H&I have operated a free interpretative educational scheme since 2013.

3 clinical scenarios are distributed yearly covering solid organ, HSC transplantation and platelet transfusion. Each case provides laboratory test results and clinical information: they require affirmed clinical decisions/clinical advice. Here were present the findings of the three 2016 scenarios.

Scenario 1: Renal Transplant Case

This scenario involved a patient awaiting renal transplant, with previous liver transplant and multiple pregnancies (17 participants). The scenario provided the patient's HLA type, sensitising events, and Luminex Single Antigen results (MFI range 0-20251).

From details provided for 4 deceased donors, 16/17 participants would not proceed to transplant based on a virtual crossmatch (VXM) with 3 of the donors. For the 4th donor 9/17 would recommend transplanting this sensitised patient based on a VXM due to absence of DSA (Table 1).

Table 1: Number of labs that would perform a virtual crossmatch (VXM) for 4 potential deceased donors

VXM	Donor 1	Donor 2	Donor 3	Donor 4	Reasons for selection
No	**17 (100%)**	**16 (94.1%)**	**17 (100%)**	8 (47.1%)	Sensitised patient, DSA present, repeat mismatches
Yes	0 (0.0%)	1 (5.9%)	0 (0.0%)	**9 (52.9%)**	No DSA, HLA match

Participants were asked to select a risk category for 2 potential live transplants who had CDC negative but positive B cell flow cytometry crossmatch results. For live donor 1, 90% selected a high risk/contraindication to transplant. There was more variation for donor 2, with responses ranging from low risk to high/contraindication and 42% selecting a medium risk (Table 2).

Table 2: Selected risk levels for potential live transplants

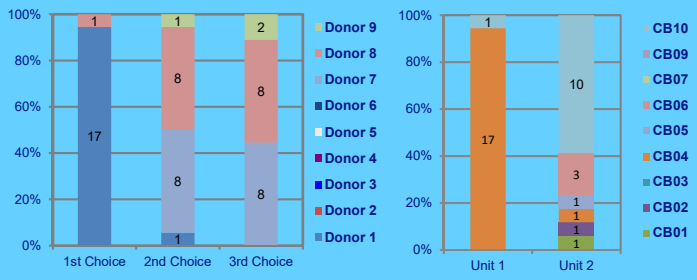
Risk Category	Low	Low/ Medium	Medium	Medium/ High	High/ Contra-indication	Other/ Undecided
Live Donor 1 DQ9 DSA MFI >10,000	0	0	3 (17.6%)	1 (5.9%)	**13 (76.5%)**	0
Live Donor 2 DQ2 DSA MFI <3000	4 (23.5%)	1 (5.9%)	**8 (47.1%)**	0	2 (11.8%)	2 (11.8%)

Scheme 2: HSCT Case

This scenario involved an adult AML patient with 'challenging' HLA type requiring HSCT (18 participants). Unrelated donor search results for 9 donors were provided. From these mismatched donors, all 18 labs chose the same donor as one of their 3 selections, with 17/18 selecting it as their first choice (Figure 1a) .

When a cord blood search was initiated, 75.6% of participants would require a double unit transplant for this adult patient.

From the provided 10 cord blood units, the same 2 units were selected by 11/18 (61.1%) of participants, with 18/18 (100%) selecting 'CB04' as one of the units (Figure 1b).



1a. Unrelated donor selection **1b. Cord Blood Unit Selection**

When a DPB1 donor specific antibody was detected (MFI 2000-6000), 14/18 77.8% of labs stated this would constitute an increased risk to the transplant.

Scenario 3: Platelet Case

This scenario involved a post-HSCT patient with HLA and HPA antibodies refractory to random donor platelets (13 participants).

From provided Luminex Single Antigen results (MFI range 0-12679) and HPA antibody results (HPA-5b antibody), 12/13 (92.3%) of labs chose the same donor as one of 3 selections from 24 HLA & HPA typed apheresis donors (Figure 2).

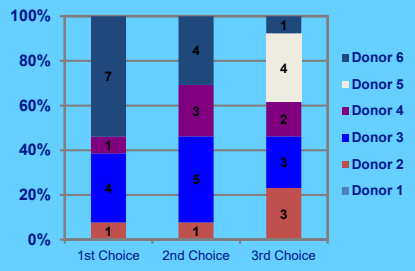


Figure 2: Platelet donor selection

When provided with platelet increment data after the transfusion of several HLA and HPA compatible units, all labs (100%) reported they would perform additional tests, 11/13 (84.6%) of these stating they would perform ABO antibody titres.

Comment

Although the scenarios are not formally assessed they allow documented clinical interpretation/advice to be compared between laboratories. While there was good agreement on many aspects of the scenarios, others show more variation.