UK NEQAS
International Quality Expertise

Histocompatibility & Immunogenetics

UK NEQAS for H&I's Educational Scheme - Incorporating Crossmatching, HLA Typing and Antibody Detection/Specification

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Introduction

UK NEQAS for H&I continually monitor and review their EQA schemes to ensure they reflect current clinical practices. Each scheme offers participants a technical assessment of individual techniques. The interpretive educational scheme offers participants clinical scenarios to compare their clinical decision making.

However, assay repertoires and results vary greatly from centre to centre. Importantly, laboratories routinely have to interpret unique combinations of results from multiple assays to form clinical decisions for patients, particularly for solid organ transplantation.

Educational Exercise

An educational exercise was trialled whereby one 'donor' blood sample and three 'patient' serum samples were distributed. Laboratories were asked to perform the tests they routinely carried out in a live unrelated donor kidney transplant setting:

- ❑ HLA typing (PCR-SSP, PCR-SSO, SBT)
- ❑ Antibody detection/specification (Luminex, CDC, ELISA)
- ❑ Crossmatching (CDC with/without DTT, FCXM)

Participants were requested to list donor specific antibodies (DSAs) and to provide a clinical interpretation of the results envisaging that the three serum samples were from three different renal 'patients' who were all ABO compatible with the 'donor'.

A total of 20 labs participated, although not all reported on every aspect.

Results

Serum 1 was sourced from pooled female, non-transfused, blood group AB, blood donors.

- ❑ 12/20 (60.0%) labs detected DSAs with MFIs ranging from 998 – 3172.
- ❑ 14/20 (70.0%) labs classed this as 'low risk' based on negative crossmatch results and low level DSAs.

Serum 2 was sourced from a highly sensitised, multiparous female.

- ❑ 20/20 labs detected DSAs with MFIs up to 26650
- ❑ 19/20 (95.0%) labs judged their findings as a contraindication to transplantation based on the positive CDCXM and FCXM and the high level DSAs.

Test/Interpretation			Report	No. of Labs
Serum 1	DSAs Present?		Yes	12/20 (60.0%)
	CDCXM	No DTT	Negative	15/16 (93.8%)
		DTT	Negative	16/16 (100.0%)
	FCXM		Negative	13/14 (92.9%)
	Assigned Risk		Low	14/20 (70.0%)
Serum 2	DSAs Present?		Yes	20/20 (100%)
	CDCXM	No DTT	Positive	15/16 (93.8%)
		DTT	Positive	11/16 (78.6%)
	FCXM		Positive	14/14 (100.0%)
	Assigned Risk		Veto	19/20 (95.0%)
Serum 3	DSAs Present?		Yes	19/19 (100.0%)
	CDCXM	No DTT	Negative	14/16 (87.5%)
		DTT	Negative	14/14 (100.0%)
	FCXM	T Cell	Positive	8/12 (66.7%)
		B Cell	Negative	8/11 (72.7%)
	Assigned Risk		Medium	12/20 (60.0%)

Serum 3 came from a 'moderately' sensitised female blood donor.

- ❑ 19/19 labs detected DSAs with MFIs ranging from 615 – 7795.
- ❑ 12/20 (60.0%) participants classed this as 'medium risk' based on the presence of DSAs in combination with negative CDCXM and positive/equivocal FCXM.

Comment

This exercise has highlighted both concordances but also important variations between different laboratories. The scheme will be continued and may form the basis of future formal EQA scheme design.

Further Information

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

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