OHIO ASSOCIATION OF BLOOD BANKS PROFICIENCY SAMPLE: RESULTS FOR A D^u SPECIMEN

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Introduction

The Scientific and Education Committee of the Ohio Association of Blood Banks (OABB) recently sent a D^u specimen to 110 institutions in the state as one of its proficiency samples. This particular sample was selected to survey the current standard of practice in Ohio for determining Rh immune globulin candidacy. Although there was some disagreement concerning RhIg candidacy because a prenatal blood type was unavailable, the most significant result was that out of the 87 responses received, the Rh type was reported 25 different ways.

Results

Serological Procedures

Procedures performed	Responses	Reason performed	Result
ABO	80	Routine—or to complete question #1 (see below)	Group O
Rh type	87	Routine	See Question #1
D^u	87	Routine	Positive 85 Mixed field 2
DAT (or autocontrol)	19	Routine To validate D^u To check for other antibodies	Negative
Rosetting test	16	Routine for OB pts To screen for Rh-pos fetal cells	Positive 11 Invalid 5
Fetal hemoglobin stain	33	To determine if there was a large fetal-maternal bleed and if so, the number of vials of Rh immune globulin needed	Negative 25 Positive 2 Sent Out 6 (results unknown)
Antibody screen	55	Routine To rule out anti-D	Negative
C-typing	7	Because of D^u-pos	Positive
Rh phenotype	4	Because of D^u-pos	C+, E−, c+, e+

Answers to Questions

1. What is the patient's blood type?
   All respondents agreed that the patient was group O. Her Rh type was reported 25 different ways. The Rh type results were consolidated into the following six results.

O pos	9
O pos (D^u-pos)	5
O pos, D^u-variant	17
O D^u-pos	13
O D-neg, D^u-pos	41
O neg, D^u-neg	2

2. According to your institution's policy, is the patient a candidate for Rh immune globulin? Why?
   NO—70
   Selected comments:
   Patient has already formed antibody
   Patient is true D^u-pos
   Prenatal typing showed patient to be D^u-pos
   D^u-pos due to trans r^1 gene
   When test for either D or D^u is positive, the label shall read Rh-pos; only Rh-neg women should receive Rh immune globulin
   YES—14
   Selected comments:
   If the patient is true D^u-pos
   If there is a large fetal-maternal bleed
   Four vials if prenatal was D^u-neg
   One vial—could be fetal cells
   Number of vials depends on fetal stain
   Patient is D-neg, D^u-neg
   MAYBE—3
   Comment:
   Up to the physician

Conclusions

The April 1987 OABB proficiency specimen was group O, D^u-positive.

As can be seen from the above results, there are numerous ways of reporting the D^u phenotype. Although the majority of responses listed the Rh type as D-neg, D^u-pos, a review of the current literature indicates that this is no longer considered acceptable terminology.

In 1982, Konugres et al[1] used the term "Rh-positive, D^u- variant" to describe the three known mechanisms of weak expression of the D antigen. That article appears to have instigated the latest controversy over proper Rh terminology. Lacey et al,[2] Broman,[3] Moore,[4] and Issitt[5] all agree that the term D^u-variant should be used only when it has been determined that the D^u phenotype represents a lack of a portion of the D mosaic. Broman,[3] Issitt,[5] and Widmann[6] agree that "D− D^u+" should no longer be used. However, they do not agree on the terminology that should be used in its place. Widmann[6] prefers to use the term "O (or other ABO group) positive, D^u-variant" or "O pos, D^u pos"; Broman[3] suggests using either "D^u or Rh+D^u," while Issitt[5] suggests that these cells should be called "D^u." Zuck[7] also suggests that "D^u phenotype" may be the appropriate generic term to use.

The controversy continues when the question of whether D^u women who give birth to D-positive children are candidates for Rh immune globulin. Many investigators feel that, because the vast majority of D^u individuals possess all portions of the D mosaic and are unable to form anti-D, routine Rh immune globulin prophylaxis for D^u women is not justified.[8,9] Others, however, feel that the D-mosaic women should be protected.[8] Ultimately, the use of Rh immune globulin for D^u women is a decision, at this point in time, that must be made by the patient's physician.

References

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THE IMMUNOHEMATOLOGY CONSULTATION REPORT: WHAT, WHEN, HOW MUCH?

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Introduction

There is no doubt about the mandate to maintain blood bank records and reports. The Code of Federal Regulations (CFR 606.160) states:

> Records shall be maintained that include, but are not limited to the following:
> (b) (4) Compatibility test records:
> (i) Results of all compatibility tests, including crossmatching, testing of patient samples, antibody screening and identification.
> (ii) Results of confirmatory testing.
> (6) Transfusion reaction reports and complaints, including records of investigations and follow-up.

The American Red Cross (ARC) Blood Service Directive 6.5 explains in detail how ARC reference laboratories must comply with the Federal Regulations for records. It states:

> Each patient specimen studied must have the following records:
> A. Antibody identification including special cell typing and a report to the submitting hospital.
> B. Units screened and found compatible.
> C. All special typings or procedures performed.

It also says these records must be kept indefinitely.

Immunohematology Reference Laboratory Reports

What information should be included in a reference laboratory report? The closest direction about content can be found in the ARC Good Manufacturing Practices (GMP) Inspection Checklist which asks: "Do patient consultation report forms include name and address of Red Cross Center, patient name and identification numbers, date, serologic data, transfusion recommendations or clinical significance of antibody, referral laboratory, and name of person sending report?"

Identification

What is the need for patient identification? There is no doubt that the name and address of the submitting and reference laboratories and the name of the patient must appear in the report. The submitting hospital's identification number for the patient should appear so that the report will be placed in the correct chart. As patients are now rapidly discharged, the reference laboratory report may not arrive at the submitting hospital until after the patient is discharged, which means that the correct chart will have to be found in the medical records files.

Many patients have similar or identical first and last names and hospital admission codes can change with each admission. Therefore, social security numbers and birthdates would allow better identification of the patient by the referral reference laboratory when the patient is subsequently admitted, perhaps at another hospital, and further work is requested.

Turnaround time

Three dates—the date of specimen collection, the date of receipt by the referral laboratory, and the date the report is sent—should appear in the report. The first two dates aid in establishing the chronology of events if a series of specimens is sent and an evolving picture develops, such as the detection of new antibodies, interim transfusions, transfusion reaction investigations, etc.

The third date—the date the report is sent—provides a means of documenting the turnaround time. Turnaround time can be affected by a number of factors, including volume and complexity of cases, number of reference personnel available, overtime availability, etc. Knowledge of turnaround time allows laboratory personnel to examine the system and to pinpoint areas that need attention.

Many reference laboratories telephone the report to the submitting laboratory as soon as the work is completed. If blood is needed, information concerning availability of compatible units and crossmatching techniques need not await a written report. If specificity of the antibody or antibodies has not been determined by the end of a normal work day, the urgency of the patient's need for blood can be ascertained, and from this telephone consultation a decision can be made concerning the need for overtime.

If there is no urgent need for blood and the case requires more extensive or complex testing, a prelimi-