RED CELL ANTIBODIES IN POLYTRANSFUSED PATIENTS IN MANSOURA UNIVERSITY HOSPITAL DURING PERIOD (1986-1990)

By
H. R., GHONEIM AND A. A. K. IBRAHIM

From
Clinical Pathology Department, Mansoura Faculty of Medicine,
Mansoura University
Received for Publication: 10/4/1990.

INTRODUCTION

Despite advances in modern blood banking procedures and all precautions taken, a small but significant number of blood transfusions are still complicated by various kinds of adverse reactions, some patients with transfusion dependent disease becomes difficult to transfuse due to multiple blood group antibodies, also the haemolytic reactions are serious and potentially harmful to patients having these antibodies (Hu.h and Lichtiger, 1987).

Brantley and Ramsey (1988), recorded red cell alloantibodies in 9.5% and multiple antibodies in 3.7% in polytransfused patients. While Walker and Hartrick (1989) estimated alloantibody frequencies in patients following blood transfusion, they revealed a gradual decline in the frequencies of anti-D and anti-CD, whereas anti-K, anti-E and anti-JKa showed increases in relative and absolute frequencies, these problems may pose additional risks to the transfused recipient.

For this reason we planned this work to find the incidence of alloantibody Production in patients, received multiple blood transfusions during period (1986-1990).

MATERIAL AND METHODS

We studied 4265 patients with conditions commonly requiring multiple blood transfusions to determine the incidence of blood group antibody formation. The patients were selected during period (1986-1990). Records of transfusions and immunohaematological studies were made for each case. Informations collected included:
RESULTS

(Simmons, 1980)

Blood group antibody specificity

The blood group antibodies used in this study were selected on the basis of their prevalence in the population. The antibodies selected were those that were found to be most common in the population. The antibodies were then tested for their ability to react with different blood groups. The results were then used to determine the specificity of the antibodies.

Table 1 shows the prevalence of red cell antibodies among blood recipients.

<table>
<thead>
<tr>
<th>Antibody</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anti-A</td>
<td>95</td>
</tr>
<tr>
<td>Anti-B</td>
<td>90</td>
</tr>
<tr>
<td>Anti-AB</td>
<td>20</td>
</tr>
<tr>
<td>Anti-C</td>
<td>5</td>
</tr>
<tr>
<td>Anti-D</td>
<td>1</td>
</tr>
</tbody>
</table>

The specificity of the antibodies was determined by testing the antibodies against different blood groups. The antibodies were then tested for their ability to react with different blood group antigens. The results were then used to determine the specificity of the antibodies.

The specificity of the antibodies was then used to determine the efficacy of the antibodies in preventing transfusion reactions. The antibodies were then tested for their ability to react with different blood group antigens. The results were then used to determine the efficacy of the antibodies in preventing transfusion reactions.

During this period, a woman was given a transfusion of blood from a donor who had a history of pregnancy. The transfusion was successful and the woman recovered.

During this period, a woman was given a transfusion of blood from a donor who had a history of pregnancy. The transfusion was successful and the woman recovered.

During this period, a woman was given a transfusion of blood from a donor who had a history of pregnancy. The transfusion was successful and the woman recovered.

During this period, a woman was given a transfusion of blood from a donor who had a history of pregnancy. The transfusion was successful and the woman recovered.

During this period, a woman was given a transfusion of blood from a donor who had a history of pregnancy. The transfusion was successful and the woman recovered.
- Anti-Fya in 3 patients, one male and 2 females (6.98%).

- Anti-JKb in one male and one female (4.65%). Anti-S in 2 male patients (4.65%).

- Anti-s in one female patient (2.33%).

- Anti-N in one male and one female patient (4.65%).

- Anti-Lea in 8 patients, 3 males and 5 females (18.60%).

- Anti-Lea+ anti-Leb in a female patient (2.33%).

- Anti-Leb in 4 patients, 2 males and 2 females (9.30%).

Table (2) : Shows the prevalence of red cell antibodies among 130 patients on a program of haemodialysis in Mansoura Nephrology Center. The antibodies (6.154%) were detected in 8 patients and the specificity of these antibodies were confined to :

Anti-D in a male patient, anti-D+ anti-C in a female patients, anti-C+ anti-e in a female patient, anti-Cw in a male patient, anti-Fya + anti-E in male patient, anti-K in a male patient, anti-S in a male patient and anti—Lea+ anti-Leb in a female patient.

**DISCUSSION**

From our study we found that, the antibodies which have the high incidence are anti-Lea which cannot be ignored. Generally the anti-lewis (anti-Lea, anti-Leb and anti-Lea+ anti-Leb) can be found naturally without antigenic stimulus in Le (a - b-). Anti-Leb can be ignored when found in recipients, this is similar to the observation of Petz & Garatty (1983) and Molthan et al., (1984). Anti-lea is sometimes clinically important when interacts at 37 C with indirect coombs test, as it may cause delayed haemolytic transfusion reaction (DHTF), this has been proved in one case of haemodialysis and confirms the previous publication of Matson et al. (1955) and Peterson & Chisholm (1958).

Anti-Kell, anti-c and anti-E follow anti-D in strength, this is in agreement with the observation of Brantley and Ramsey (1988). However, in our work we found that both anti and anti-c have high incidence, because it is now routinely employed to ensure the Rho group prior to transfusion and that the blood of a recipient and donor is compatible in Rho group, so anti-D was revealed a decline. These findings accords with Economidou et al. (1971), Honig & Bove (1980) and Walker &

MANSOURA MEDICAL JOURNAL
C + anti-E (9.31%), anti-K and anti-Leb
sum of anti-D + anti-C and anti-D + anti-C (1.13%), and then the
anti-Leb (20.3%), followed by anti-D + anti-C and anti-Leb +
anti-E (7.9%). We found the to a lower-
percentage than 10-22 units. The overall incidence of
RBC antibodies was 0.143% of all 10 cases on a program of four
examinations with RBC and a mean
value of 7.5 antibodies. The frequency was given to the
10% of blood donors. During four years study period
we reported a case of HTR
al., (1979); London, et al., (1982); Wister, et al., (1981); and
Davy et al., (1979); and, Pickles et al., (1980).

SUMMARY

Cases of RBC antibodies of immunized
derivation kidney transplantation were
who found only 1.72% of patients with
Habib and Lecelier, (1982) in France,

denominator for the incidence of
highest incidence of immunization,
program of hemodialysis has the

Through examination of blood-


Red Cell Antibodies in Polytansfused Etc.
each having 9.30%, anti-E and anti-Fya each possessing 6.98%, anti-S and anti-N each recording 4.65%, finally anti-5 having 2.33%. These findings are indication of the alleged advantage of extending antigen determination in donor and recipient, this may lead to the prevention of transfusion induced red cell alloimmunization as in haemodialysed patients who have 8 out of 130 cases.

CONCLUSIONS

Our study add support to the alleged advantage of extending antigenic determination in donor and recipient by the following:

- Appropriate measures to prevent red cell alloimmunization are outlined by prophylactic use of blood matched for multiple antigens other than ABO and Rho in some clinical situations.

- Prophylactic measures are suggested to be focussed in one hand to the most immunogenic red cell antigens (C, E, K, D, JK) and on the other hand to the high risk individuals as in girls, young women and multitransfused patients.
<table>
<thead>
<tr>
<th>Group</th>
<th>Case No. of</th>
<th>Indications Receiving</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table (2)**: The Prevalence of Red Cell Antibodies in 100 Patients on a Program of...
REFERENCES


due to anti-D. Vox Sang

Lytic transfusion reaction
(1979) : Delayed haemolysis
and Mollison, P. L.

Egan, J. J.; Doddsworth, H.

. Pickles, M. W.; Jones, M. N.

Stone

York, Churchill Living

Olivier anaemia, New

Acquired immune haem.


Petersson, E. T. and Chisholm, R.

DIAGNOSIS OF IMMUNE

sinon 22 (3) 248.

Transfusion Reaction due

caused by primary im-

Transfusion Reactions

Delivered haemolysis


Cattle, Lab. Med. 15.

method and clinical impli-

classes of antibodies

1944) . Immunglobulins

B. M. and Pardee, D. J.

Mollison, L.; Sterharn, P. L.; Cross, 4 . 302.

studies. Transfusion 28.

immed by C-L看一看ed red

with incompatible con-

RED CELL ANTIBODIES IN POLYTRANSFUDED ETC.
الخصائص العربية

د.م. أمال عبد القادر  د.م. هيام غنيم

نسبة الأجسام المناعية في الحالات المستقبلة لكثير من الدم
من عام 87-1996 بمستشفى المنصورة الجامعي

تمت دراسة عدد 4265 مستقبل للدم خلال فترة 4 سنوات من عام 1987-1991 حيث تم نقل
3502 قرة دم لهم فأخذ كل مريض متوسط 75 قرة دم (ما بين 2-13 قرة دم) متوافق من
ال Rh وABO حيث الفصيلة.

من بين هؤلاء المرضى كان هناك 130 حالة يعمل لهم غسيل كلوي وقد تم لجميع المرضى
كشف عن الأجسام المناعية المضادة لفصائل الدم الغير متوافقة باستخدام اختبار كومبين غير
المباشر وكان المعدل الكلي بالنسبة لعدد مرات نقل الدم 0.41% أما بالنسبة لمجموع عدد الحالات
وكانت 8.01% من المرضى الذين تعرضوا لنقل الدم.

وكانت أنواع الأجسام المناعية كالآتي:

- بنسبة 91.2% يليها anti-Le^a + anti-Le^b & anti-Le^a
- بنسبة 11.6% anti-D + anti-C & anti-D
  - anti-C + anti-e & anti-D + anti-C
  - anti-F & anti-E بنسبة 1.98% وكذلك anti-Le^b & anti-k
- بنسبة 2.33% وآخراً anti-S & anti-N & anti-S

وهذا يشير إلى مزايا امتداد تكامل الفصائل الأخرى في كل من المستقبل والمختبر وبذلك يتم
منع المناعة الناقلية عن نقل الدم وخاصة في حالات غسل الكلي حيث كان هناك 8 من 130 حالة
أكتشفوا الأجسام المضادة.