index finger occurred as an isolated lesion. They conclude that such a "localized paralysis cannot anatomically be of peripheral-nerve or nerve-root distribution, and is only explicable by an anterior-horn-cell lesion." This conclusion is to be doubted in view of the fact that the weakness is in the distribution of the anterior interosseous nerve.

In both the cases described above it was approximately a year after the onset of the weakness that recovery began. In the absence of any recovery after a prolonged period, the question of a tendon transplant into the thumb would have to be considered. No decision should be made until at least 18 months after the onset. In the meantime the function of the denervated muscles should be maintained so far as possible by means of galvanism. Splinting is unnecessary.

Summary

Two cases of acute interstitial neuritis of the anterior interosseous nerve are described, one complete, the other affecting the branch to the flexor pollicis longus. Other examples of this condition found in the literature are reviewed.

We should like to express our thanks to Mr. H. L.-C. Wood for permission to report the second case.

REFERENCES

- Borchardt, M., and Wjasmanski (1917). *Beitr. klin. Chir.*, 107, 553.
 Parsonage, M. J., and Turner, J. W. A. (1948). *Lancet*, 1, 973.
 Ranschburg, P. (1917). *Neurol. Zbl.*, 36, 521.
 Spillane, J. D. (1943). *Lancet*, 2, 532.
 Sunderland, S. (1945). *Anat. Rec.*, 93, 317.
 Wilson, S. A. K. (1940). *Neurology*, p. 329. Arnold, London

ON THE VERBAL USAGE OF THE CDE NOTATION FOR THE RH BLOOD GROUPS

BY

SOL HABERMAN, Ph.D.

AND

JOSEPH M. HILL, M.D.

(From the J. K. and Susie L. Wadley Research Institute and Baylor Hospital, Dallas, Texas, U.S.A.)

Since Fisher and Race published their theory of the triple allelomorphous nature of the Rh-Hr blood antigens and antibodies (see Race, 1944) there has been considerable discussion on the usefulness of their CDE notation as compared with the Wiener (1949) notations. One of the most frequent criticisms that have been made of the Fisher-Race notation is that it is difficult to use verbally. In spite of such an objection, we have found that the Fisher-Race system is complete, clear, and versatile enough to allow for the inclusion of new antigens and antibodies as they are discovered.

Method

In our laboratories there has evolved a verbal usage of the Fisher-Race notation that seems useful to the laboratory worker as well as to the clinician who is faced with an iso-immunization problem. In this system the genotype or "probable genotype" (Hill, 1947) is taken into account rather than the phenotype. Although our method is not offered as a panacea for this controversial subject, we feel that it has certain virtues, such as: (1) using the CDE notations verbally for both the antigens and the antibodies; (2) elimination of double symbols and double thinking in writing the CDE genotype and presenting it verbally;

(3) consideration of the antigens present in an erythrocyte on a genetic basis; and (4) a presentation of usable information for clinical problems.

In Table I are presented some CDE genotypes, the Race short symbol for verbal usage, the Wiener (1949) terminology, and the method we have used in verbal presentations. In this latter system of verbal usage, only the CDE (Rh) antigens are given, with the cde (Hr) antigens left out but understood to be present. With this system the CDE antigens are regarded as closely linked genes inherited in groups of three. Consequently, the genotypes are given with consideration to both sides of the chromosomes—for example, CDe/CDe is called homozygous CD, whereas CDe/cde is called heterozygous CD, and Cde/Cde is called homozygous C, while Cde/cde is heterozygous C. Although the examples presented in Table I do not cover all of the CDE/cde (Rh-Hr) genotypes, a sufficient number are presented for an adequate demonstration of the system.

TABLE I

Genetic and Antigenic Constitution	Race Short Symbols	Wiener Terminology, 1949	Suggested Verbal Usage
cDe/cDe	rr	rr	Rh negative
CDe/CDe	R ₁ R ₁	R ₁ R ₁	Homozygous CD
CDe/cde	R ₁ r	R ₁ r	Heterozygous CD
CDe/CDe	R ₁ R ₂	R ₁ R ₂	CDDE or CD over DE
cDe/cDe	R ₂ R ₂	R ₂ R ₂	Homozygous DE
Cde/Cde	R'r'	r'r'	Homozygous C
CDe/cde	R'r	r'r	Heterozygous C
CDe/cde	K'r	r'r	Heterozygous C ^w
CDe/C ^w de	R'R' ^w	r'r ^w	Homozygous C ^w
cDe/cDe	R ₀ R ₀	R ⁰ R ⁰	Homozygous D
CDe/cde	R ₀ r	R ⁰ r	Heterozygous D
cdE/cdE	R'R'	r'r	Homozygous E
CDe/cde	R'r	r'r	Heterozygous E
CDe/CDe	R ₁ R ₀	R ₁ R ⁰	CDD or CD over D
CDe/cDe	R ₁ R'	R ₁ r	CD over E
CDe/Cde	R ₁ R'	R ₁ r	CDC or CD over C
CDE/cde	R ₁ r	R ₁ r	Heterozygous CDE
CDe/Cde	R ₂ R ₂	R ₂ R ₂	Homozygous CE
C ^w De/CDe	R ₁ R ₁	R ₁ R ₁	C ^w DCD or C ^w D over CD
C ^w De/cDe	R ₁ R ₂	R ₁ R ₂	C ^w DDE or C ^w D over DE
CDe/C ^w de	R ₂ R' ^w	R ₂ r ^w	CEC ^w or CE over C ^w

It should be noted that the verbal usage of the CDE notation has already been successfully applied to the antisera for the Rh-Hr subgroups, using the same notation without special consideration for multiple specificity sera. Table II presents the already used antisera terminology as compared with that previously offered by Wiener.

TABLE II

Fisher-Race	Wiener	Fisher-Race	Wiener
Anti-C	Anti-rh'	Anti-D ^u	Anti-Rh ^u
Anti-D	Anti-Rh ₀	Anti-E ^u	Anti-?
Anti-E	Anti-rh''	Anti-CD	Anti-Rh ₁
Anti-c	Anti-hr'	Anti-DE	Anti-Rh ₂
Anti-d	Anti-Hr ₀	Anti-C ^w D	Anti-Rh ₃
Anti-e	Anti-hr''	Anti-C ^w C	Anti-rh''rh''
Anti-C ^w	Anti-rh'''	Anti-DD ^u	Anti-Rh ₀ Rh ^u

By comparing the Wiener notations of antigens (Table I) with antisera (Table II) one can readily see the changes in designations that are made between antigen and antibody. For example, the Rh antigen combinations are given without the h, such as r, r'', R', while the corresponding antibody is designated as anti-rh', anti-rh'', and anti-Rh₁. In addition to the deletion of the h, antigens have the subgroup designations above the r or R, and antibody subgroup designations are positioned below the rh or Rh.

In contradistinction to the Wiener usage, the Fisher-Race designations specify that the same letter used for the antigen be used for the antibody—that is, anti-c, anti-e, anti-CD, etc.

In view of the above verbal usage of the Fisher-Race nomenclature in what we feel is a successful manner, there is no longer that serious objection to the use of this system.

BIBLIOGRAPHY

- Race, R. R. (1944). *Nature, Lond.*, 153, 771.
 Hill, J. M. (1947). *Amer. J. clin. Path.*, 17, 494.
 Wiener, A. S. (1949). *Hereditas, Lund.*, Suppl. Vol., p. 419.