Correspondence

Defect of neutrophil mobility with dominant inheritance in a family with Waardenburg's syndrome

Sir,

Hayward *et al.*¹ report an interesting family. They modestly conclude that the association may be coincidental, giving this possibility as much weight as of the two phenomena being linked. From the very informative pedigree (Figure repeated here, slightly altered for convenience) with the founder having had offspring by three wives, one can assess the odds against the association being chance.

Figure Coexistence of Waardenburg's syndrome and a defect of neutrophil mobility—family pedigree.

Each child of an affected person would have a 1 in 4 chance of inheriting both genes if they were unlinked, and a 1 in 4 chance of escaping both (possibilities $\square$, $\square$, $\square$, $\square$).

The chance of the 8 informative children of affected individuals being concordant, either being free or of having both genes is thus $1/4^8$ or 1 in 65536.

The chance that the genes are very closely linked is thus very great. All that needs explaining is the apparent normality of the founder's neutrophil function. Has this been tested?

A tendency to recurrent infections is not generally part of Waardenburg's syndrome. If a tiny deletion, invisible on current methods of chromosome analysis, were responsible for Waardenburg's, then perhaps a slightly larger one, possibly visible on methotrexate prometaphase banding, could be present in this family. The results of

such study could be of value in identifying the chromosome which carries the Waardenburg gene. This approach has proved of value in the Wilms's tumour, aniridia, mental deficiency association syndrome.²

References

- Hayward A R, Mowla R, Harvey B. Defect of neutrophil mobility with dominant inheritance in a family with Waardenburg's syndrome. *Arch Dis Child* 1981; **56**: 279-82.
- Rickardi V M, Sujansky E, Smith A C, Francke U. Chromosomal imbalance in the aniridia-Wilms' tumour association: 11p interstitial deletion. *Pediatrics* 1978; **61**: 604-10.

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Dr Hayward comments:

The founder died before 1960 and did not have neutrophil function tests; he did not have great susceptibility to infection. Descendants of the founder's great uncles were traced but none had either Waardenburg's syndrome or recurrent infections.

T3 Uptake tests in newborn infants

Sir,

Uhrmann *et al.*¹ reported a high frequency of hypothyroxinaemia in low birthweight infants, particularly those with hyaline membrane disease and in small-for-gestational age babies. Their findings are in accordance with other neonatal studies of serum thyroxine (and serum triiodothyronine) concentrations in recent years.²⁻⁵ A comprehensive assessment of the mechanisms for the low thyroid hormone concentrations in these infants has recently been given by Fisher and Klein.⁵

Uhrmann *et al.*¹ excluded a decreased serum thyroid hormone binding capacity as the cause of the hypothyroxinaemia in low birthweight newborn infants. This conclusion was based on the T3 charcoal uptake test. However, the T3 uptake test is an indirect measurement of serum T4-binding capacity and, among other factors, depends not only on the serum level of thyroid hormone-binding proteins but also on the saturation of the binding sites of these proteins. Determinations of serum thyroxine-binding globulin (TBG) and thyroxine-binding prealbumin (TBPA) concentrations in healthy and sick newborn infants have shown a lower serum protein level in preterm