A prospective study of 18 infants of chronic HBsAg mothers

Sir,
I read with interest the paper by Mollica et al. and should like to add the results of our prospective study for comparison with other Mediterranean countries on 37 HBsAg mothers who were found among 1002 pregnant women attending a maternity hospital. Although 3.7% of the mothers were positive for HBsAg, only 0.1% of cord blood specimens was HBsAg demonstrable by counter electrophoresis. 15 of the babies of HBsAg mothers were followed up every 2 months for a 4- to 9-month period for HBsAg determinations. Only one baby became HBsAg-positive during this time, without any evidence of hepatitis. 12.8% of our neonatal hepatitis cases are HBsAg-positive using the same method.

Anti-HBs was present in the sera of 2 mothers, and in the cord bloods of their babies, without HBsAg being present.

References

SINASI ÖZSOYLU
Hacettepe University, Institute of Child Health 609, Hacettepe, Ankara, Turkey

Professor Mollica and co-workers comment:

Professor Özsoyulu gives additional data concerning maternofetal transmission of hepatitis B virus infection obtained in a Mediterranean country with a fairly high prevalence of HBsAg carriers. The figures for HBsAg positivity in cord bloods (1:37) and sera at follow-up (1:15) in infants of chronic HBsAg mothers are lower than those in our series (3:9 and 4:18); this is not surprising as counter electrophoresis has a lower sensitivity then radioimmunoassay. 1

Despite the poor sensitivity of his method, Professor Özsoyulu found HBsAg in 5 of 39 (=12.8%) cases of neonatal hepatitis. This confirms that many cases of neonatal hepatitis in the Mediterranean area are due to hepatitis B virus, and attempts to prevent this dangerous infection in newborn babies at risk are justified.

Reference

Carrier detection in Duchenne muscular dystrophy

Sir,
In a recent article on carrier detection in Duchenne muscular dystrophy, Sibert et al. concluded that their data support Haldane's rule that one-third of the cases should be due to new mutation. We believe that they have misinterpreted Haldane's statement.

Haldane showed that of all cases of an X-linked recessive disease in a given generation, a fraction $(1-f)\mu/2\mu + \nu$ should be due to new mutation, where $f$ = fitness of affected boys and $\mu$, $\nu$ are mutation rates in eggs and sperm, respectively. For a genetically lethal disease, such as Duchenne muscular dystrophy, $f = 0$. If in addition we assume that $\mu = \nu$ then the familiar form of Haldane's rule results: in each generation, one-third of the cases of a lethal X-linked recessive disease should be due to new mutation.

Instead of using all cases, Sibert et al. restrict their analysis to mothers of isolated cases. However, the expected proportion of new mutants among isolated cases is not one-third. Since mothers with 2 or more affected sons are obligate carriers, eliminating them results in a group of mothers with an expected proportion of noncarriers greater than one-third. The exact proportion of noncarriers expected depends on the distribution of sibship sizes in the population, but it is always greater than one-third under the same assumptions that lead to Haldane's rule. Thus, if Sibert et al. find one-third of the mothers of isolated cases are noncarriers it may be evidence that more cases than expected are inherited. This can result from violation of any of the assumptions under which Haldane's rule is derived. For example, if the mutation rate is higher in sperm than eggs there will be an increased number of women who are carriers because they received a new mutation from their fathers. Evidence that significantly fewer than one-third of Duchenne muscular dystrophy cases are due to new mutation had been presented in several recent reports.

References

K D BUCHER
Department of Preventive Medicine, V V IONASESCU
Department of Pediatrics, University of Iowa, Iowa City, Iowa 52242, USA

FLORINDO MOLLI"C, SALVATORE MUSUMECI, AND TERESA MATTINA
Clinica Pediatrica Universit"a, viale Andrea Doria 6, 95125 Catania, Italy
Carrier detection in Duchenne muscular dystrophy

K D Bucher and V V Ionasescu

Arch Dis Child 1980 55: 413
doi: 10.1136/adc.55.5.413-b

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