Letters to the Editor should be typed double-spaced (including references) with conventional margins. The length of the text is limited to five manuscript pages.

Concanavalin A Binding of α-Fetoprotein in the Diagnosis of Neural Tube Defects—a Word of Caution

To the Editor:

We were most interested to see the report of Buamah et al. (1) on the use of α-fetoprotein (AFP) concanavalin A (Con A) binding studies as an adjunct to total AFP assay in the diagnosis of neural tube defects. In a preliminary study of 20 abnormal pregnancies (complicated by anencephaly, “open” spina bifida, or exomphalos) and 21 normal pregnancies we also found that this test appeared to be valuable (2). We have now completed a larger study of 121 pregnancies (49 normal, 25 anencephalic, 21 “open” spina bifida, and 20 abnormal pregnancies other than neural tube defects). Our results from this larger study now lead us to question the value of % Con A non-reactive AFP measurements (manuscript in preparation).

Firstly, we found that the % Con A non-reactive AFP in amniotic fluid falls off markedly with gestational age over the period 16–20 weeks. A similar gestational age-related decrease has been shown by Toftager-Larsen et al. (3), using an electrophoretic rather than a column technique. In our study, the overlap between normal and abnormal pregnancies was considerable before 19 weeks of gestation, and extensive after 19 weeks. The data of Buamah et al. for normal and abnormal pregnancies are not matched in terms of gestational ages. For example, 68% of their normal pregnancies were of 17 weeks gestational age or less, as compared with 12.5% of abnormal pregnancies. The derivation of a mean and range for % Con A non-reactive AFP for all normal pregnancies taken as a group therefore results in considerable overestimation of the separation between normal and abnormal groups.

The second point concerns the relative merits of additional tests in cases of “borderline” amniotic fluid total AFP values. To be of value, a test must aid in the correct classification of “false-positive” or “false-negative” total AFP results. We found that values for % Con A non-reactive AFP incorrectly classified as abnormal two of four cases with false-positive total AFP results (pregnancies with normal outcome and amniotic fluid total AFP results greater than four SDs above the mean for gestational age). Similarly, of six cases of exomphalos, only two could be definitely identified as abnormal by use of the Con A-Sepharose column method.

We found polyacrylamide gel electrophoresis of amniotic fluid cholinesterase enzymes, estimation of total and acetylcholinesterase activities, or α2-macroglobulin measurements to be far superior to % Con A non-reactive AFP in the reduction of misclassification errors associated with results for amniotic fluid total AFP.

References

P. J. Wood
Dept. of Chem. Pathol. & Human Metabolism
Southampton Univ. Hospitals
Southampton S09 4XY, U.K.

E. Coombes
Biochem. Dept.
Salisbury General Infirmary
Salisbury, Wilts, U.K.

K. Spencer
Biochem. Dept.
Oldchurch Hospital
Romford, Essex, U.K.

This Letter was referred to Buamah et al. They responded as follows:

To the Editor:

The numbers in our series are statistically small, but the differences between the normal and affected pregnancies are clear and without overlap. Despite the small numbers we believe the report was justified in that the technique allowed the correct identification of case 12, which would have been misclassified by total AFP alone.

Wood et al. criticize us for not gestational-age-matching the test and control samples. This would be a valid criticism had there been overlap in the ranges, but is invalidated by the clear distinction recorded. In fact there was case matching within the control group, but this became an irrelevant item in the tabulation of data.

We find it hard to believe that Wood et al. can use conventional parametric statistics in the analysis of their data. Amniotic fluid AFP does not obey gaussian distribution norms. Median values and centiles or multiples of the normal median give a more reliable estimate of distribution than do mean and standard deviation.

With regard to additional tests for the diagnosis of neural tube defects, the Con A non-reactive fraction of AFP is a useful adjunct to total AFP in the “borderline” group of cases. We would, however, agree that an unrelated technique such as the acetycholine esterase isoenzyme is preferable, and initial data would suggest that it is superior in its ability to reduce misclassifications (collaborative acetylcholine esterase study, Lancet ii: 321–324, 1981).

P. K. Buamah
1
A. Milford Ward
P. Taylor

1 Dept. of Lab. Med.
Freeman Hosp.
Newcastle upon Tyne
NE7 7DN, U.K.

Investigation of Monoclonal Gammopathies by Immuno-electrophoresis and Immunofixation

To the Editor:

I read with interest the article by Merlini et al. (1), comparing immuno-electrophoresis (IEP) and immunofixation (IF) for the identification of monoclonal components. They suggested that IF be used for the identification of monoclonal gammopathies only in the easier cases and that IEP be used in those cases where there is an uncertainty about the presence of a monoclonal component or where there are multiple bands present. I disagree with the above conclusion, on the basis of my laboratory's experience with these techniques. We have found the opposite to be true. Small monoclonal peaks (<10 g/L) are not always easily identifiable by