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LETTERS TO THE EDITOR

Prenatal progesterone

Dear Sir,

My paper on 'Ante-natal Progesterone and Intelligence' [1] concluded:

> "It may be argued that this survey is incomplete. It is based on a clinician's observation of bright school children whose mothers received progesterone during pregnancy. It is hoped that this paper will stimulate others to make a closer examination of the intelligence of further groups of progesterone children."

Apart from the work of the Zussmans [5] the papers by Lynch and colleagues [3,4] appear important as the only follow-up studies of progesterone children, albeit their numbers are small and they failed to trace 78% of the children in the series. The purpose of this study, discussed initially with Professor Hutt and Mr. Mychalkiw, was to determine specifically whether the effect of progesterone was limited to the first sixteen weeks of fetal life (as with thalidomide and rubella) or whether it continued throughout fetal life. Thus only women from the controlled trials, whose protocol was limited to selection of expectant mothers between the 16th and 28th weeks of pregnancy, were included. I am happy that Lynch's work has established that there is little intellectual benefit to progesterone children who received medication after the 16th week of fetal life. No mention is made in their discussion of the possibility of progesterone being effective only if administered before the 16th week. Furthermore, the hypothesis that prenatal progesterone might have an effect on brain function is not nullified by failure to explain the mechanism of such action, nor by comparison of progesterone with androgenic steroids, nor by failure to demonstrate a similar action of progesterone in rats, a species which does not suffer from toxaemia of pregnancy. The action of progesterone is known to be species-specific. The need for a prospective, long-term follow-up of progesterone children, who received medication before the 16th week of fetal life, remains.

The second paper criticizes the results which appeared in my 'unpublished paper'. It should be put on record that this confidential paper was prepared for discussion and a copy handed to Professor Hutt for his comments. It was never intended for publication, as it was knowingly compiled one year before all the children had obtained their last 'O' or 'A' level results and before selection for university was complete. The statement "the results have been biased in favour of the progesterone children" is therefore without foundation and merely reflects the fact that more progesterone children

stayed at school until the age of 18 years. Children who entered non-university full-time education were specifically excluded from my published paper on educational attainments [2], as entry to some non-academic courses, such as hairdressing and dressmaking, do not require any 'O' or 'A' level passes, and admission to teachers training colleges can be obtained with a lower academic standard than university.

For a span of twenty years I was fortunate to have the generous help and guidance of Professor D.D. Reed in the statistical advice and planning of trials and in checking the results of my work on progesterone and toxaemia. His statistical conclusions were considered adequate at the time of publication, even though today more sophisticated calculations might have been used.

Perhaps statistical bias is not the only bias. It is interesting that in these papers my observations are represented as 'claims', whereas the observations of other workers are referred to as 'findings'.

REFERENCES

1 Dalton, K. (1968): Ante-natal progesterone and intelligence. Br. J. Psychiat., 114, 1377–1382.
2 Dalton, K. (1976): Prenatal progesterone and educational attainments. Br. J. Psychiat., 129, 438–442.
3 Lynch, A., Mychalkiw, W. and Hutt, S.J. (1978): Prenatal progesterone II. Its effect on development and on intellectual and academic achievement. Early Hum. Dev., 2, 323–339.
4 Lynch, A. and Mychalkiw, W. (1978): Prenatal progesterone I. Its role in the treatment of pre-eclamptic toxaemia and its effect on the offspring's intelligence: a reappraisal. Early Hum. Dev., 2, 305–322.
5 Zussman, J.U., Zussman, P.P. and Dalton, K. (1975): Post-pubertal effects of prenatal administration of progesterone. In: Proceedings of the Society of Research in Child Development, Denver, April 1975.

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Dr. Dalton's letter was shown to Dr. Lynch, and the following is his reply — Ed.

Regarding Dr. Dalton's letter replying to our Progesterone Papers, I will answer the points raised by her letter in the reverse order, paying special attention to paragraph 3 relating to her statistics, as I believe this is the point on which the other criticisms contained in her letter and the claims in her papers must stand or fall.

1. Dalton states that: " (her) . . . . statistical conclusions were considered adequate at the time of publication . . .".