British Journal of Psychiatry (1994), **165,** 551–559

Correspondence

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Post-natal psychiatric morbidity

SIR: Ballard *et al* (*BJP*, June 1994, **164,** 782–788) assert that their data "supports the work of Cooper *et al* (1988) and O'Hara *et al* (1984) that there is no additional vulnerability to depression in post-natal mothers above that in a control group".

This conclusion is not supported. Using their results, the 95% confidence interval for the excess psychiatric morbidity in post-natal mothers at six weeks is (− 1.3, 19.6). This interval includes the point zero, so it is compatible with the "null hypothesis" that there is no excess morbidity in the post-natal group; yet it is equally compatible with a true excess morbidity of nearly 20%.

Looked at another way, the statistical power of this study is only 37%, meaning that there is a 63% probability of a type II error – accepting the "null hypothesis" when it is false. To increase the power to 80% would require a sample size of at least 343 subjects in each group. For the fathers, the power of the study is only 15%, and to increase this to 80% would require a sample size of at least 1068 subjects in each group.

Also, neither of the studies quoted investigated the prevalence of depression in a control group. They used comparative data from community surveys carried out by other investigators.

Finally, the conclusion of O'Hara *et al*'s paper was that "The 12% prevalence of postpartum depression reported here might have been about double the rate of depression in community women, using criteria identical to ours. Consistent with reports of higher rates of psychiatric hospitalization for puerperal than for non-puerperal women, it appears that our subjects experienced a higher rate of depression than did non-puerperal women." This conclusion is, therefore, exactly the opposite of what Ballard *et al* state it to be.

COOPER, P. J., CAMPBELL, E. A., DAY, A., *et al* (1988) Non-psychotic psychiatric disorder after childbirth: a prospective study of prevalence, incidence, course and nature. *British Journal of Psychiatry,* **152,** 799–806.

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Head circumference at birth and schizophrenia

SIR: McNeil *et al* (*BJP*, April 1993, **162,** 517–523) report that head circumference (HC) *per se* and the ratio of it to body length (BL), at the time of birth in preschizophrenics are significantly smaller when compared with control neonates. This supports the neurodevelopmental hypothesis of schizophrenia (Murray & Lewis, 1987; Waddington, 1993).

In Japan, each pregnant woman has, since 1948, been officially issued with a "Maternal and Child Health Handbook" (MCHH) ("Boshi-Kenkou-Techou" in Japanese). Obstetricians are obliged to fill in the MCHH with regard to the progress of pregnancy and delivery, and each baby is followed up by paediatricians or other care professionals for several years. Most mothers keep their MCHHs well after their children become adults. We collected 64 MCHHs of DSM–III–R (American Psychiatric Association, 1987) schizophrenic patients (34 men) born between 1959 and 1979, who were treated at the psychiatric clinics of Teikyo University Hospital and three associated hospitals, in the Tokyo area, between April 1993 and March 1994. We also obtained 45 MCHHs of their healthy siblings (22 men) born between 1961 and 1985.

The mean (s.d.) HC at birth in preschizophrenics and in their siblings were 33.1 (1.6) and 33.4 (1.3) cm respectively. The ratios (s.d.) of HC to BL at birth were 0.661 (0.034) for preschizophrenics

and 0.657 (0.035) for their siblings. When analysis of covariance allowing for the effect of gender and BL (as a covariate) on HC was applied to the data, no significant difference in HC at birth was found between preschizophrenics and their siblings (F=0.43, d.f.=1,104, P=0.52), nor was there an interacting effect of gender and the case–sibling status on HC (F=0.00, d.f.=1,104, P=0.98). Next, we performed paired t-tests by selecting 11 male-male and 6 female-female sib-pairs. The mean (s.d.) HC in preschizophrenics and in their siblings respectively were 33.9 (1.5) and 33.4 (1.2) cm (t=1.40, d.f.=16, P=0.18). The HC–BL ratios (s.d.) were 0.660 (0.030) for preschizophrenics and 0.653 (0.034) for their siblings (t=0.78, d.f.=16, P=0.17). Again, no significant difference was detected. We also examined gestational age (weeks) at delivery, but no statistically significant difference was found between the two groups (the mean age was 39.2 in preschizophrenics and 39.7 weeks in siblings (t=0.98, d.f.=15, P=0.34).

Thus, we failed to confirm the findings reported by McNeil *et al*. This failure could be due to not all the comparison group having passed through the risk age of the disease. Also, the schizophrenic patients and their siblings will share genes which influence brain development – a comparison with siblings may have biased our study.

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Lithium mutagenicity

SIR: Many fertile women receive prophylactic lithium carbonate treatment (Schou, 1990). It is not known whether the higher than expected frequency of congenital anomalies reported among the offspring of mothers receiving lithium therapy in the last two decades (Warkany, 1988) is related to a direct lithium toxicity, a mutagenic effect on germ cells, or both. To our knowledge this is the first case-controlled study blindly comparing patients taking lithium with normal controls with regard to the assessment of the frequency of chromosomal lesions.

Eight white Brazilian patients (mean (s.d.) age 37.50 (10.36) years) who had been receiving continuous lithium therapy (mean dose 768.75 (139.05) mg/day) for at least one year were selected from the Escola Paulista de Medicina's Affective Disorders out-patient clinic and compared with 10 psychiatrically healthy drug-free controls matched for sex and age who were concomitantly drawn from the otolaryngologic out-patient clinic of the same institution. A cytogenetic analysis was carried out using standard methods with blood lymphocytes cultured in a folic-acid free medium. A total of 100 mitoses per subject were analysed with the investigator blind to group assignment. Chromosomal lesions were observed by G-banding with trypsin stain for localisation of the lesions. The results showed a total of 102 and 96 lesions scored for cases and controls respectively. There was no difference between groups (P>0.10) concerning the number of lesions, and there was no evidence of a special distribution pattern of lesions throughout the chromosomal map in either group.

These findings suggest that lithium has no mutagenic activity at the level of resolution used (400 bands). Recent reports have suggested that the risk of thyroid and cardiovascular malformations, especially the rare Ebstein's anomaly, remains controversial (Zalzstein *et al*, 1990; Ferner & Smith, 1992; Jacobson *et al*, 1992). According to our results, a teratogenic effect of lithium would be more easily explained by a direct toxic effect of lithium carbonate rather than a mutagenic effect on germ cells.

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