

Correspondence

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IVF and Goldenhar syndrome

SIR,

We are interested in the hypothesis presented by Dr Jongbloet on page 616 of this issue, suggesting a causal relationship between IVF and a case of Goldenhar syndrome reported by our group at the PIVET Laboratory IVF programme. The two issues we addressed concern the relationship between IVF and monozygotic twinning as well as the relationship between IVF and the Goldenhar syndrome. With regard to the former phenomenon, we have witnessed one case of proven monozygotic twinning (from 11 cases of multiple pregnancy) with a diamniotic/monochorionic gestational sac. This indicated that the embryo split or divided after implantation, between day 7 and 13 after transfer, and therefore had no clear and direct relationship to the techniques applied in IVF.

The case with Goldenhar syndrome was a possible monozygotic twinning with a diamniotic/dichorionic configuration and could therefore have occurred before implantation with a potential link to IVF techniques, although we feel it is unlikely. We regard the cause of the disorder as quite obscure, but noted that it could be induced in an animal model by producing fetal haemorrhages in the region of the first and second branchial arches¹ or by some other abnormal process affecting the mesoblast, from which is induced the branchial and vertebral systems.² Because the mesodermal germ layer does not develop until the end of the second week of embryonic development, and the branchial arch forms during the somite stage of the third week, we felt that IVF techniques (both mechanical handling methods and culture conditions) were not directly related to the syndrome.

However, we agree that oocyte factors have not been excluded as a cause. Because of the artificial ovarian stimulation system used in IVF, it is

believed that many of the oocytes recovered are at variable stages of maturation, including immature, postmature, and partially atretic oocytes. If indeed oocyte overripeness is the cause of Goldenhar syndrome, then a link with infertility treatment where ovarian stimulation is applied becomes a possible hypothetical cause. However, Dr Jongbloet's hypothesis has not been supported by other workers at this stage and our own data gathered on a variety of infertility treatment regimens involving ovarian stimulation,³ reveal only the one case of Goldenhar syndrome arising from more than 450 infants delivered whose mothers had ovarian stimulation during the conception cycles.

Furthermore, this congenital anomaly remains rare and ours was the only such case reported from more than 2000 IVF infants collated from worldwide centres for the Fourth World Conference on IVF presented in Melbourne in November 1985.⁴

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