

The infusions were all of commonly used clear fluids and blood and there was no significant difference between the two groups. The added drugs were also evenly distributed. There were eight (17%) cases of thrombophlebitis in the treatment group and 15 (31%) among controls ( $P=0.05$ ). Patients in the treatment group took 40% longer to develop thrombophlebitis than the controls: 66.4 hours compared with 47.4 hours. The average duration of the infusions in the treatment group ( $54.7 \pm 14.1$  hours) was longer than in the control group ( $46.7 \pm 13.5$  hours), but this reflected the greater number and earlier onset of cases of thrombophlebitis in the control group. When positive cases were excluded the averages were closer (controls 46.3 hours, treatment group 52.1 hours). There were no infective complications.

### Comment

Thrombophlebitis complicates about 30% of infusions.<sup>2</sup> Many factors contribute to its development, which makes prevention more difficult. In most cases such prevention saves the patient from a minor but rather painful condition; but when few veins are available prolonging the life of each drip becomes more important. Several regimens have been suggested for prophylaxis but they have tended to be complicated and to demand frequent changes of puncture site. The condition is not infective so local antibiotics are not helpful,<sup>3</sup> and it should not be confused with the rare and potentially lethal condition of suppurative thrombophlebitis.<sup>4</sup>

This trial has shown that the application of Movelat cream to the skin over the drip vein three times daily reduces the incidence of thrombophlebitis by nearly half. When the condition does occur the onset is delayed. Its routine use with intravenous infusions is recommended.

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<sup>1</sup> Schafermeyer, R W, *Journal of the American Medical Association*, 1974, **228**, 695.

<sup>2</sup> Thomas, E T, Evers, W, and Raczy, G B, *Current Researches in Anaesthesia and Analgesia*, 1970, **49**, 50.

<sup>3</sup> Ghildyal, S K, Pande, R C, and Misra, T R, *International Surgery*, 1975, **60**, 341.

<sup>4</sup> Stein, J M, *New England Journal of Medicine*, 1970, **282**, 1452.

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North Middlesex Hospital, London N18 1QX

C R J WOODHOUSE, FRCS, surgical registrar (now senior registrar, St Peter's Hospitals, The Shaftesbury Hospital, London WC2)

## Maternal serum alpha-fetoprotein in relation to zygosity

In 102 twin pregnancies maternal serum  $\alpha$ -fetoprotein (AFP) concentrations were negatively associated with birth weight.<sup>1</sup> This report presents the results of an investigation into the relationship of AFP concentrations with zygosity in the same group of twin pregnancies.

### Methods and results

Since 1972 serum samples from all pregnant women attending the antenatal clinics of the John Radcliffe Hospital, Oxford, have been routinely stored at  $-40^{\circ}\text{C}$ . Samples relating to 102 twin pregnancies collected from 11 to 24 weeks of gestation were retrieved and tested.<sup>1</sup> AFP concentrations were expressed as multiples of the median value for singleton pregnancies without neural-tube defects at the relevant week of gestation, and mean AFP concentrations were calculated using logarithms. Thirty-three of the 102 pairs of twins were of different sexes and therefore dizygous. The zygosity of the 69 like-sexed pairs was sought in late 1977 by asking their family doctors or mothers whether they were physically identical. The physical appearance of twins is an accurate method of determining zygosity;<sup>2</sup> identical twins were taken as being monozygous and non-identical twins as being dizygous. We classified all but nine of the twin pairs in this way; in eight cases one or more of the pair of twins had died, and in one case neither the family doctor nor the parents could be traced. For these nine we examined the number of placentas and chorionic sacs.<sup>3</sup> Like-sexed twins who share a single placenta have a 70% chance of being monozygotic, and if they have separate placentas

there is an 85% chance of their being dizygotic.<sup>4</sup> Dizygous twins rarely have a single chorion, and only about 20% of monozygous twins have two chorions.<sup>4</sup> Each of the nine like-sexed twin pairs was therefore taken to be monozygous if there was one placenta and dizygous if there were two. In four pairs the number of chorionic membranes was known and corroborated the classification based on the number of placentas.

Mean maternal serum AFP concentrations for monozygous and dizygous twin pregnancies according to the mean birth weight of each pair of twins and according to their sex

	Mean AFP* (and No of pregnancies)	
	Monozygous	Dizygous
Mean birth weight of each twin pair (g):		
< 1500	3.73 (6)	2.44 (4)
1500-	3.02 (9)	1.95 (5)
2000-	2.02 (8)	1.97 (19)
2500-	2.26 (10)	2.07 (26)
> 3500	2.22 (3)	2.10 (12)
Sex:		
Female-female	2.81 (12)	2.15 (18)
Male-male	2.46 (24)	2.02 (15)
Male-female		2.03 (33)
Total	2.57 (36)	2.06 (66)

\*Mean AFP in multiples of the median for singleton pregnancies of the same gestational age.

The table shows the mean AFP concentration for monozygous and dizygous twin pregnancies according to sex and the mean birth weight of each pair of twins. Overall the mean AFP concentration in the monozygous twin pregnancies was 25% greater than that in the dizygous twin pregnancies ( $t=2.22$ ;  $P<0.05$ ). The higher concentration among the monozygous twins was found in each of the five categories of birth weight ( $P<0.05$ ) and in both female-female and male-male pairs.

### Comment

The results indicate that monozygous twin pregnancies are associated with higher maternal serum AFP concentrations than dizygous twin pregnancies. Since dizygous twins are on average heavier than monozygous twins (2600 g and 2210 g respectively in our data) the noted<sup>1</sup> negative association between AFP concentration and birth weight among twin pregnancies might to some extent be accounted for by differences in zygosity. Since the negative association between AFP concentration and birth weight has been shown in singleton as well as twin pregnancies,<sup>5</sup> however, it is unlikely that the similar finding in twin pregnancies is completely explained by zygosity.

We thank all the general practitioners we contacted, who, without exception, responded to our inquiry about whether the twins in our study were identical or not. We also thank Mr Jeremy Wyatt, who helped with the statistical analysis of the results and Dr Mary Seller for her helpful advice.

<sup>1</sup> Wald, N J, *et al*, *British Journal of Obstetrics and Gynaecology*, 1978, **85**, 582.

<sup>2</sup> Cederlöf, R, *et al*, *Acta Genetica*, 1961, **11**, 338.

<sup>3</sup> Bulmer, M G, *The Biology of Twinning in Man*. Oxford, Clarendon Press, 1970.

<sup>4</sup> Corney, G, Robson, E B, and Strong, S J, *Annals of Human Genetics*, 1972, **36**, 45.

<sup>5</sup> Wald, N, J, *et al*, *Lancet*, 1977, **2**, 268.

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ICRF Cancer Epidemiology and Clinical Trials Unit, Department of the Regius Professor of Medicine, Radcliffe Infirmary, Oxford OX2 6HE

NICHOLAS J WILD, MB, MRCP, lecturer  
HOWARD S CUCKLE, DPHIL, lecturer

St Hilda's College, Oxford  
SYLVIA PECK, student

Nuffield Department of Obstetrics and Gynaecology, John Radcliffe Hospital, Oxford OX3 9DU

GORDON M STIRRAT, MD, MRCOG, clinical reader  
A C TURNBULL, MD, FRCOG, professor