we started using only intramuscular Metrodin, followed by subcutaneous Metrodin high purity in the latter months of 1993. The case mix, treatment protocol, and stimulation remained unchanged, as did the indications for oocyte retrieval or in vivo fertilisation over that time.

We noted two significant changes. Firstly, the number of patients ready for oocyte retrieval on the prearranged day fell, and the duration of stimulation and dosage required increased. In 1992 only 9% of patients required additional stimulation and oocyte retrieval to be delayed by seven days or more, whereas in 1993, 22% of oocyte retrievals took place more than seven days after the scheduled date.

The second change we noted was an appreciable drop in the pregnancy rate. In 1992, while human menopausal gonadotrophin was used, the pregnancy rate per cycle started was 25%, whereas in 1993 the pregnancy rate fell to 11%. The pregnancy rate did not improve on changing from Metrodin to Metrodin high purity. Since the beginning of 1994 we have reverted to human menopausal gonadotrophin (Pergonal). Of the completed in vivo fertilisation cycles from which we know the outcome, the pregnancy rate is 29%.

Our data suggest that exogenous luteinising hormone may have an important role in follicular development when pituitary desensitisation has been induced, or that the extraneous proteins highlighted recently may include various growth factors,[2] which may have an important direct role in follicular development. We suggest that there are clinical indications as well as cost factors[1] to support the use of human menopausal gonadotrophin rather than follicle stimulating hormone in ovarian stimulation in all patients receiving assisted conception, and not just the small group of patients with hypogonadotrophic hypogonadism.

The role of exogenous luteinising hormone and extraneous proteins in ovarian stimulation will be answered only by the development and meticulous clinical and biological evaluation of recombinant follicle stimulating hormone and luteinising hormone preparations.

STEVEN VINE, Research registrar
LINDA GREGORY, Senior embryologist
DAVID CHUI, Research registrar
CATHERINE WELLS, Embryologist
MICHAEL RUMINGTON, Research registrar
SHEILA WALKER, Director

Assisted Reproduction Unit,
University of Wales College of Medicine,
Cardiff CF4 4XN

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Alcohol histories taken from elderly people

EDITOR,—We wish to respond to D Thompson's comments on our study.[1] Thompson states that we claim that elderly people are more likely than younger people to hide their drinking and that there is no evidence to support this. This information is stated in our introduction and is based on earlier literature.[2]

Thompson also emphasises that studies have shown that older people drink less than younger ones. But declining alcohol intake does not imply that it has no clinical importance. Compared with young people, elderly people are much more vulnerable to the effects of alcohol.[2] Also, Curtis *et al* point out that as the population ages there may be many more older people who are dependent on alcohol.[3]

Thompson implies that failure to record histories does not necessarily indicate an underestimation of the importance of the ingestion of alcohol by elderly people. But failure by doctors to take an adequate history must lead to the diagnosis being missed and to underestimation of the problem. Several previous studies—for example, that by Barrison *et al*[4]—in young people have shown that doctors record inadequate alcohol histories. Rowland *et al* state that failure by junior doctors to take an adequate alcohol history relates to the patient's condition, pressure of time, and the doctor's attitude towards alcohol problems.

For several reasons, doctors are less likely to take an adequate alcohol history from elderly people.[2,3] This seems amply confirmed by our study, in which the quality of history taking was significantly poorer ($P<0.001$, $\chi^2=28.559$, df=2) than that found in Barrison *et al*'s study.[4]

Alcohol problems may present in elderly people in many different ways. Curtis *et al* state that alcohol problems in elderly people may have replaced syphilis as the "great masquerader."[3] Hence our recommendation—that a quantitative alcohol history, which should include our question on alcohol in tea or coffee, should be taken routinely from all elderly people—seems well justified. Caution is often sensible, but it seems incautious, even without our evidence, not to implement this precaution. It is simply good practice to take a good alcohol history.

P C NAIK, Consultant psychiatrist
Lyndon Clinic,
Solihull B92 8PW

R G JONES, Senior lecturer in psychiatry
Department of Health Care of the Elderly,
Queen's Medical Centre,
Nottingham NG7 2UH

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Correlation, regression, and repeated data

EDITOR,—J Martin Bland and Douglas G Altman's note on correlation, regression, and repeated measures draws attention to the problem of calculating a correlation coefficient based on repeated observations of the same subject.[1] But they fall prey themselves to the common misjudgment of placing too much importance on the significance of the correlation coefficient.

The basic problem is the way in which significance is calculated as the correlation coefficient is strongly affected by the number of cases for which there are pairs of data. If, for example, you have about 500 cases the correlation coefficient needs only to be 0·088 to be significant at the 0·05 level; if, however, you have just 18 cases the correlation coefficient will need to be at least 0·468 to achieve the same level of significance. Yet it is patently absurd to say that a correlation of 0·4 is less important in the latter case than a correlation of 0·088 in the former simply because the correlation of 0·088 is more significant. The second coefficient is clearly larger and therefore of more interest, though our test of significance tells us that we have to be more circumspect in this second case than in the first in inferring that the relation could not have arisen by chance.

When the number of observations is small the sample correlation will be a biased estimate of the population correlation coefficient (if you have the smallest sample size possible—just two points—these will by definition always fall on a straight line and therefore have perfect correlation). To correct for this problem most statistical packages will give an adjusted correlation coefficient known as r_{adj}.

Another important point about correlation, which Bland and Altman omit to mention, is that before correlation coefficients are calculated the scatter plot should be checked to see whether the same subject produces outlying data points for both variables measured. If this is the case it suggests that the subject's data, although possibly legitimate, might have a disproportionate influence on the resulting correlation. An inspection of the scatter plot that Bland and Altman provide for their hypothetical data suggests that this may be an issue with one of their subjects. A recommended method for dealing with this problem is to run the analysis including and excluding such extreme points to see what differences appear in the results.

RAJENDRA PERSAUD, Clinical lecturer
Institute of Psychiatry,
London SE5 8AF

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Authors' reply

EDITOR,—The brief for the statistics notes was to write a series of short pieces of around 600 words. Most of these will cover only one point concerning the design of a study or analysis. The piece that Rajendra Persaud comments on dealt only with the error of combining repeated observations from several subjects and then analysing the data as if they were a simple sample. It was not intended as a full treatise on correlation. We agree with Persaud about the importance of estimation rather than significance tests and the need to plot data, and have written of these elsewhere.[1-3] While it is true that the sample correlation coefficient is a biased estimate of the population correlation coefficient, this was not relevant to our topic. We do not know of any programs that make the adjustment that he mentions.

J MARTIN BLAND, Reader in medical statistics
Department of Public Health Sciences,
St George's Hospital Medical School,
London SW17 0RE

DOUGLAS G ALTMAN, Head
Medical Statistics Laboratory,
Imperial Cancer Research Fund,
London WC2A 3PX

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Who cares for young carers?

EDITOR,—Sue Jenkins and Candida Wingate discuss the needs of children and young people who help to support adults with disabilities in the community,[1] emphasising "the strains of practical everyday caring." We believe that the emotional strains may need even greater consideration and that they vary, depending on the illness of the person being supported at home.

In 1988 we undertook a pilot study of the effects of multiple sclerosis on the children of sufferers.[2] In two boroughs we identified 12 families from hospital records and from the membership of the local branch of the Multiple Sclerosis Society. Three parents were fathers and nine mothers; the range of the degree of disability was wide.

Eleven of 15 children complained of extra chores,