Early amniocentesis: a cytogenetic evaluation

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Br Med J 1989;**299**:25

We investigated the use of amniocentesis performed at eight to 14 weeks' gestation as a possible alternative to chorionic villus sampling.

Patients, methods, and results

Samples of amniotic fluid were taken from 40 women undergoing termination of pregnancy. Informed consent was obtained from each patient by the counselling clinician. Thirty samples were obtained at the Chelsea Hospital for Women and 10 from the Samaritan Hospital for Women. The study was approved by the ethics committees of both hospitals. The procedure was done under the guidance of an ultrasound scanner (Technicare) with a 5 MHz probe. When appropriate the gestational age was confirmed by measuring the crown-rump length and biparietal diameter. Only pregnancies in which the fetal heartbeat was identified were included in the study. A 20 gauge spinal needle was used for the amniocentesis, the placenta being avoided when possible. Fetal material was obtained at termination for confirmation of the karyotype. The samples of amniotic fluid were divided into 5 ml aliquots and cultured by routine methods.[1]

The table shows the cytogenetic results from the 40 samples of amniotic fluid. A success rate of 100% was obtained with 15 samples taken at 12-14 week's gestation, and the mean time to the cells being harvested was 12·6 days. In contrast only 17 (68%) of the 25 samples taken at eight to 11 weeks yielded a result. One sample taken at 13 weeks' gestation yielded a female karyotype, whereas the fetal parts revealed a male karyotype; the sample was subsequently identified as maternal urine. The mean volume of amniotic fluid obtained was 13·9 ml (range 1-40 ml).

Results of karyotyping amniotic fluid samples taken at eight to 11 and 12-14 weeks gestation

Gestation (weeks)	No of cases	Karyotyping successful	Karyotyping unsuccessful	Success rate (%)	Mean (range) time to cells being harvested (days)	Karyotype 46XX	Karyotype 46XY
8	1	1		60	10·0		1
9	9	5	4	60	12·0 (10-17)	3	2
10	8	6	2	75	14·3 (10-24)	4	2
11	7	5	2	71	13·3 (10-17)	3	2
Total	25	17	8	68	12·3 (10-24)	10	7
12	7	7		100	11·2 (6-14)	4	3
13	6	6		100	14·6 (10-20)	4	2
14	2	2		100	11·0*	1	1
Total	15	15		100	12·6 (6-20)	9	6

*Eleven days in both cases.

Comment

All 15 samples taken at 12-14 weeks' gestation yielded a result. The mean time to cells being harvested in this group (12·6 days) compared favourably with the current mean of 11 days for the samples obtained routinely at 16-19 weeks that are processed by our laboratory. Culture of all the 5 ml aliquots obtained at 12-14 weeks was successful. Thus a 10 ml sample would provide two cultures, which are necessary for the interpretation of equivocal results and in case of microbial infection.

In one case, a urine sample was obtained at 13 weeks' gestation from an obese patient in whom imaging was poor. In a clinical environment sampling would not have been attempted, and this patient would have been recalled later.

Our results show that amniocentesis from as early as 12 weeks' gestation can provide sufficient material for cytogenetic diagnosis and could be offered as an alternative to current methods of prenatal diagnosis. Furthermore, the procedure could be carried out by doctors already familiar with the technique, using existing resources. Patients must, however, be advised that the risks of this procedure are unknown. Preliminary reports from the United States suggest that early amniocentesis is safer than chorionic villus sampling.[2-4] Further evaluation, preferably by means of a randomised trial, is urgently needed. We are continuing our investigation of amniocentesis before 12 weeks with the aim of bringing the procedure forward into the first trimester of pregnancy.

We acknowledge contributions to the study from Mr N Fisk, Mr P Reginald, Mr M Michel, and Mrs R Rebello.

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(Accepted 4 April 1989)

Geriatric rehabilitative care after fractures of the proximal femur: one year follow up of a randomised clinical trial

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Br Med J 1989;**299**:25-6

Proximal femoral fractures in the elderly often lead to permanent disability and dependency. A controlled trial of postoperative rehabilitation by a team led by a physician in geriatric medicine showed immediate benefits in earlier discharge from hospital and greater personal independence at the time of discharge,[1] but no studies show whether such rehabilitation confers longer term benefit. We report the impact on quality of life, strain on carers, and survival in the year after operation for fracture of the proximal femur.

Patients, methods, and results

One year after entry into a randomised clinical trial the following evaluations were made in all survivors: the Katz index of independence in the activities of daily living, the Pfeiffer short portable mental status questionnaire, a carer strain questionnaire (for women looked after at home by a member of the family),[2] and a life satisfaction index[3] slightly modified for use in a Scottish population. The evaluations were carried out