

Health and development of children born after oocyte donation compared with that of those born after in-vitro fertilization, and parents' attitudes regarding secrecy

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The health, growth and development of a cohort of children ($n = 59$) aged 6 months to 4 years and born after oocyte donation (OD) was compared with that from a group of children born after in-vitro fertilization (IVF) ($n = 126$). The study was performed by questionnaire, and the response rate was 100% in the OD group and 95% in the IVF group. All OD children were healthy. Three IVF children had a neurological disorder. Surgical intervention had been carried out in 8% of the OD and 13% of the IVF children. Height and weight development were normal, and eating and sleeping disorders were uncommon in both groups of children. The IVF mothers more often expressed concern about the child's behaviour than did the OD mothers. Thirty-eight percent of the OD parents and 60% of the IVF parents intended to tell the child about the nature of its conception ($P < 0.01$). Although oocyte recipients appear to have more complications during their pregnancies than conventional IVF patients, the general health status of OD children aged <5 years is at least as good as that of IVF children. Growth and development in both groups of children is similar to that of the general population.

Key words: child/growth development/health/in-vitro fertilization/oocyte donation

Introduction

Oocyte donation (OD) has established itself as a standard and most rewarding method of family building in many countries. Most OD pregnancies are successful, but there are also reports of increased risks of maternal and fetal complications in these pregnancies (Serhal and Craft, 1989; Blanchette, 1993; Pados *et al.*, 1994; Sauer *et al.*, 1996; Söderström-Anttila *et al.*, 1998). Thus far, there have been very few reports on the neonatal condition of infants born after oocyte donation (Pados *et al.*, 1994; Antinori *et al.*, 1995; Sauer *et al.*, 1995, 1996). Even more limited is the information available regarding development and health in these children. Raoul-Duval *et al.*

(1992, 1994) examined a group of 14 such infants at the ages of 9 months, 18 months and 3 years. All children were born after singleton pregnancies. The mother–infant relationship was harmonious in every case and the children's psychomotor development was normal. In a questionnaire survey of 51 children aged 12 weeks to 7 years and conceived by oocyte donation, all were reported to enjoy good health in spite of some initial health problems (Applegarth *et al.*, 1995).

Follow-up studies of children born after other assisted reproduction procedures have been carried out. The health, development and behaviour of children born after standard IVF have been shown to be normal (Wennerholm *et al.*, 1991; Brandes *et al.*, 1992; Raoul-Duval *et al.*, 1994; Ron-El *et al.*, 1994; Cederblad *et al.*, 1996). Follow-up studies of children born after intracytoplasmic sperm injection (ICSI) are ongoing and, although the major malformation rate of the infants has been within the expected range, further evaluation of these children is needed (Bonduelle *et al.*, 1996). In a retrospective study of children aged 1–9 years conceived from cryopreserved embryos, Olivennes *et al.* (1996) found their development and scholastic performance to be satisfactory. Golombok *et al.* (1996) compared the social and emotional development of children born after IVF or donor insemination (DI) with those of a control group of families with a naturally conceived child, and of adopted children. No differences between the groups were found with regard to the children's emotions, behaviour or relationship with their parents. In a comparative study of Dutch DI families, more emotional/behavioural problems were revealed among DI offspring than among naturally conceived children (Brewaeys *et al.*, 1997a,b). No association was found between secrecy and the emotional/behavioural adjustment of the offspring. Child and family development in lesbian mother families was similar to that of heterosexual families (Brewaeys *et al.*, 1997b).

Follow-up studies of health status and well-being of OD offspring are few, possibly because there may be concern about the ethical or moral correctness of categorizing them as a risk group. It could also be assumed that parents who want to keep the origin of the child secret are unwilling to participate because of concern that this secrecy may be jeopardized. The issue of whether or not to tell the child of the mode of conception and genetic origin is still one of the most disputed ethical questions related to treatment with donated gametes.

At the Infertility Clinic of the Family Federation of Finland, the use of donated oocytes resulted in the birth of 61 infants between 1992 and 1996. In a recent study, we presented the obstetric and perinatal outcome of these pregnancies and compared them with those of IVF pregnancies (Söderström-Anttila *et al.*, 1998). Oocyte recipients had more complications

during their pregnancies than did conventional IVF patients. Furthermore, we noticed that OD infants were more often admitted to an intensive care unit or a newborn surveillance unit than were IVF infants, and singleton OD infants stayed longer in hospital after birth than did IVF infants. These findings emphasized the importance of a follow-up study of children born after oocyte donation.

The aims of the present study were (i) to gather information about the health status, growth and development of the total cohort of children born following oocyte donation over a 5-year period at our clinic, (ii) to compare the results with data from a group of children born over the same time period after IVF with the couple's own gametes, and (iii) to investigate these parents' attitudes regarding issues of secrecy.

Materials and methods

Oocyte donation group

The study group comprised all 59 live-born infants resulting from 51 oocyte donation pregnancies and deliveries between October 1991 and December 1996 (two infants were stillborn). Data regarding the obstetric and perinatal outcome of these pregnancies have recently been presented by Söderström-Anttila *et al.* (1998). Of the infants, 44 (75%) resulted from transfer of fresh embryos and 15 (25%) from the transfer of cryopreserved embryos.

The infants were delivered by 49 women, two of whom gave birth twice. The mean age of the mothers was 34 years and 84% were primiparae. Eight donors were known to the recipient (a sister or a friend) and the rest were anonymous volunteers. The recipient was offered the chance to receive information about the age, height, weight, hair and eye colour of an anonymous donor.

IVF group

Of a total of 97 selected IVF patients, 92 agreed to participate in both a previous investigation (Söderström-Anttila *et al.*, 1998) and in a follow-up study of their children's health and development. These 92 IVF mothers, of whom five delivered twice, gave birth to 126 live-born infants. The proportion of infants conceived after fresh and frozen/thawed replacements was similar to that of the OD group. The mean age of the mothers was 34 years, and 69% of them were primiparae.

Data collection

The investigation was approved by the Ethics Committee of Helsinki University Central Hospital. Both OD and IVF parents were contacted by mail and asked to complete a questionnaire, of which the first part included questions about the development of the child and the second part concerned ethical topics related to secrecy.

In the questionnaire, the parents were asked about the child's health in general, surgical intervention, and recurrent infections. Other questions dealt with problems in daily care, such as sleeping and eating patterns, irritability and tantrums, and shyness. Developmental milestones, such as ability to walk and talk, were noted. There were also questions regarding anything in the child's behaviour which worried the parents, and whether the OD parents were willing to participate in a developmental assessment of their child.

In Finland, almost all children are regularly weighed and measured by the primary health care services. The normal reference values for height and weight of Finnish children are based on these routine growth measurements of a large general population at the primary health care centres (Sorva *et al.*, 1990a,b). The parents in the present

study were asked to send a copy of their child's health information card and personal growth chart to the investigators. Length/height, weight and head circumference were noted at 6, 12 and 18 months, 2, 3 and 4 years and related to the standard growth curves. In cases of medical and surgical interventions, information was collected from the medical files of the hospitals where the children had been treated.

Questions regarding ethical issues were intended to clarify which non-identifying information about the anonymous donors the oocyte recipients would have liked to have received, how often a known donor contacted the child, and if there had been any problems in the relationship between the known donor and the recipient. All patients were asked if they had told other people about the nature of the conception, and whether or not they were going to tell the child about it. The parents were also asked what they themselves would have wanted to know if they had resulted from donated gametes. In the questionnaire there was also space to freely write about the experience of infertility treatment and life with the child.

Statistics

Student's *t*-test was employed to compare the ages at which the children started to walk. The *G*-test (Sokal and Rohlf, 1995) was used in all other comparisons. Significance levels for the effects of the two treatments, sex, and the number of fetuses on growth parameters were determined by analysis of variance. Before analysis, data were normalized by conducting a logarithmic transformation [$x' = \log(x + 1)$]. The chosen level of significance was $P < 0.05$.

Results

General data

Of the 49 oocyte recipients, who underwent 51 deliveries (41 singleton; 10 multiple) from the beginning of our oocyte donation programme to December 1996, all participated in this study. The questionnaire was completed and returned by mail by 48 couples and by telephone by one mother. This woman did not send a copy of the child's personal growth chart. The 92 IVF couples (97 pregnancies; 68 singleton; 29 multiple) all returned the questionnaire by mail. Five respondents did not give any information regarding height and weight development of their children and they did not send a copy of the health information card.

The age distribution of the children in the two groups is shown in Figure 1. There were 32 girls and 27 boys in the OD group and 58 girls and 68 boys in the IVF group.

Summary of perinatal data

In the oocyte donation group, the mean gestational age at delivery of singletons was 273 ± 18 (SD) days, with a birth weight of 3338 ± 740 g ($n = 39$) and among multiple births (two sets of triplets included) mean gestational age was 251 ± 28 days and birth weight was 2216 ± 698 g ($n = 20$). In the IVF group, the duration of singleton pregnancies was 277 ± 14 days, with a mean birth weight of 3475 ± 630 g ($n = 68$). The mean duration of twin pregnancies was 256 ± 15 days, with a birth weight of 2582 ± 556 g ($n = 58$). There were no statistically significant differences in the duration of pregnancy or mean birth weight of infants after singleton pregnancies between the two groups. The birth weight of infants after multiple gestation was significantly lower ($P < 0.05$) in the OD group, resulting from two sets of premature

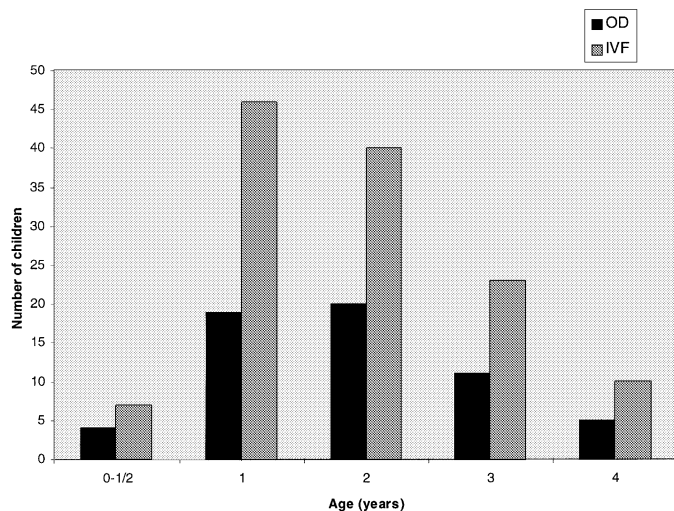


Figure 1. The number of children of different ages in the oocyte donation (OD) group ($n = 59$) and in the IVF group ($n = 126$) at the time of the questionnaire.

triplets. A Caesarean section was performed in 57% of cases in the OD group and in 37% in the IVF group ($P < 0.05$). In both groups, 20% of the deliveries were preterm. More detailed data regarding the neonatal outcome have recently been presented (Söderström-Anttila *et al.*, 1998).

Height and weight

Six OD children (all prematurely born) were below the -2 SD curve for height at the age of 6 months, but after 1 year of age, all of them had achieved normal heights and relative heights according to Finnish standard growth curves (Sorva *et al.*, 1990a,b). The relative weight of one girl (aged 18 months; birth weight 1500 g) was below the limit of relative weight at the ages of 12 and 18 months. No other weight abnormalities were observed. Head circumference at the age of 6 months was below the mean -2 SD in three children, whose birth weights were 1155–1615 g. After 1 year of age all head circumference values were normal.

One measurement in each of five IVF children aged 2–3 years (four multiple; one singleton) was below the -2 SD curve and two children were over the mean $+2$ SD for height. Five children on some occasion had a relative weight below the normal range (three multiple; two singleton) and three had a higher relative weight than normal. Head circumference values were below the mean -2 SD in three children at the age of 6 months and over the mean $+2$ SD in one child aged 1 year.

The average heights and weights of the children measured at the ages of 6 months, 1, 2 and 3 years (± 2 weeks; range) were similar in the two groups. The number of fetuses significantly affected the height of the child at 6 months ($df = 1.159$; $P < 0.001$), 12 months ($df = 1.123$; $P < 0.001$), 2 years ($df = 1.72$; $P < 0.01$) and 3 years ($df = 1.31$; $P < 0.05$). The number of 4 year old children was too small to be analysed. The number of fetuses also had a significant effect on the child's weight at the ages of 6 months ($df = 1.159$; $P < 0.001$), 12 months ($df = 1.123$; $P < 0.001$) and at the age of 2 years ($df = 1.72$; $P < 0.01$), but this was no longer

so at the age of 3 years. Boys were heavier than girls at all ages, and the difference reached statistical significance at the age of 6 months ($df = 1.159$; $P < 0.001$), 12 months ($df = 1.123$; $P < 0.01$) and 2 years ($df = 1.72$; $P < 0.01$).

Developmental milestones

Walking was achieved at the same age in both groups: at 12.2 ± 1.8 (SD) months in the OD group (singleton, 12.1 ± 1.8 months; multiple, 12.5 ± 0.4 months) and at 12.3 ± 2.0 months in the IVF group (singleton, 11.9 ± 1.6 months; multiple, 12.8 ± 2.2 months). The difference in walking achievement between children from singleton and multiple IVF pregnancies was statistically significant ($P < 0.05$). Eight IVF children were excluded from the analysis: two children with neurological disorders, three children aged 13–15 months who did not walk at the time of the study, and three because no information was given by the parents.

There were 30 OD and 59 IVF children > 2 years. At the age of 2 years, 77% of those in the OD group spoke more than 20 words (0–10 words, 9%; 10–20 words, 14%) and 56% of the IVF children spoke more than 20 words (0–10 words, 19%; 10–20 words, 25%) (NS).

General health and surgical disorders

All children had regularly visited a primary health care centre for evaluation of growth and development. In both groups, 5% of the children were regularly examined and followed up, not only at their primary health care centre, but also at a secondary or tertiary referral children's hospital.

The medical and surgical disorders of the OD children are listed in Table I. At the time of the study, almost all children in the OD group were healthy. No cases of hearing, visual or neurological defects were reported. A total of five children (8%) had undergone surgical intervention. There was one case of a major malformation, a sternum cleft, which was corrected at the age of 1 week. A minor malformation, a small dermoid cyst near the eye, was extirpated. One boy born at 31 weeks of gestation (twin pregnancy) developed respiratory distress syndrome, and pulmonary lobectomy was carried out at the age of 2 weeks because of emphysema. By the age of 2 years, the boy appeared to be healthy.

In the IVF group, there were 19 reports (14%) of diseases or clinical signs in the children, including three neurological disorders. One 2 year old girl born at 28 weeks of gestation after a twin pregnancy had cerebral palsy, and she was not able to walk without support. One boy aged 2 years (singleton normal pregnancy; delivery at full term) had a motoric delay of unknown aetiology. He did not walk without support and was receiving physical therapy. Another boy had had an epileptic fit (infantile spasm) at the age of 5 months. He recovered well but received regular medication. Other findings and conditions requiring surgery (13% of the IVF children) are summarized in Table I.

Daily care

In both groups, 20% of the children were attending nursery school. The proportions of children receiving daily care in a private family (OD group, 17%; IVF group, 16%), who had a

Table I. Medical and surgical disorders

	Oocyte donation children (<i>n</i> = 59)	IVF children (<i>n</i> = 126)
Medical and surgical illnesses	Heart murmur: 1 Hydrocele: 1 Undescended testis: 1 Allergy: 1 Recurrent infection of the upper respiratory tract: 8 (14%)	Cerebral palsy: 1 Infantile spasmus: 1 Motoric delay of unknown aetiology: 1 Vesicourethral reflux: 3 Small defect of the heart septum: 1 Loose pylorus: 1 Inguinal hernia: 2 Undescended testis: 2 Pes valgus: 1 Allergy, eczema, asthma: 6 Recurrent infection of the upper respiratory tract: 26 (21%)
Surgical interventions ^a	Thoracoplasty: 1 Pulmonary lobectomy: 1 Dermoid cyst extirpation: 1 Adenoidectomy: 1 Tympanotomy: 1	Pyloristhenosis correction: 1 Trachea stenosis correction: 1 Adenoidectomy: 13 Tympanotomy: 2

^aThese children are not included in the the above list of medical and surgical disorders.

nanny at home (OD group, 10%; IVF group, 4%), or who received full-time care from their mother or father (OD group, 53%; IVF group, 60%), were similar in both groups.

The sleeping and eating patterns of the children and the parents' opinions regarding daily care are summarized in Table II. In the OD group, fewer infants had kept their parents awake at night but this difference was not statistically significant. The parents' opinions also differed as regards the reasons for their baby's crying at night. Colic was assumed to be a more common reason in the OD group (85%) than in the IVF group (49%) ($P < 0.05$). Other reasons given were need for milk, love, security or company.

The IVF parents more often expressed concern about the child's behaviour than did the OD parents (Table II). The most common reasons for worry were sleep disturbances, tantrums, or extreme stubbornness. Two IVF parents had taken their children (both aged 2 years) to be medically examined because of sudden hysterical crying and bursts of anger. The IVF parents also reported more fear of strangers in their children than did the OD parents.

Of the OD families, 52% were interested in bringing their children for evaluation of socio-emotional development and attachment relationship to their parents; 30% did not want to participate, and 18% were uncertain.

Parents' opinions regarding ethical aspects

Only three of the 42 recipients who received oocytes from an anonymous donor would have wanted to meet the donor personally and 20 (48%) did not want to receive any information regarding the donor. The rest were interested in the donor's age, profession, physical appearance, hobbies and place of residence. The known donors were in all cases seeing the child regularly, varying from almost daily to 6–8 times a year (mostly 2–4 times monthly). Nobody reported any difficulties in the relationship between the donor and the recipient. The parents' attitudes about ethical aspects are summarized in

Table II. Parents' experiences regarding daily care of their children. Values are percentages

Question	OD children (<i>n</i> = 59)	IVF children (<i>n</i> = 126)	<i>P</i> -value
Did your child cry much and keep you awake at night when he/she was a baby?			
no	76	63	NS
yes	19	32	
uncertain	5	5	
Does your child eat willingly and with pleasure?			
always/usually	80	87	NS
varying	20	13	
rarely/never	0	0	
Does your child sleep peacefully?			
always/usually	76	74	NS
varying	22	19	
rarely/never	2	7	
Does your child show any fear of strangers? (children >6 months)?			
no	37	19	<0.05
a little	59	69	
a lot	4	12	
Is there something in your child's behaviour that concerns you?			
no	88	66	<0.01
yes	12	25	
uncertain	0	9	

OD = oocyte donation, IVF = in-vitro fertilization, NS = not significant.

Table III. At our clinic, oocyte donors do not receive any financial compensation for the donation. About half of the respondents (OD group, 55%; IVF group, 52%, NS) thought a financial reward would be reasonable.

Some parents wrote freely in the questionnaire about experiences related to their treatment. Negative experiences in the

Table III. Parents' opinions regarding ethical aspects associated with their infertility treatment. Values are percentages. Numbers in parentheses are the numbers of parents contributing answers in each case

Question	OD group	IVF group	P-value
Have you told other people about the treatment?			
nobody	27 (13)	11 (10)	<0.01
parents/sister/brother or one/two good friends	63 (31)	45 (41)	
openly	10 (5)	45 (41)	
Are you going to tell the child about the method of his/her conception?			
yes	38 (18)	60 (55)	<0.01
no	29 (14)	10 (9)	
uncertain	33 (16)	30 (28)	
If you were born from a donated gamete, would you want to know? (mother's opinion)			
yes	33 (16)	54 (49)	<0.05
no	37 (18)	27 (24)	
uncertain	31 (15)	19 (17)	
If you were born from a donated gamete, would you want to know? (father's opinion)			
yes	26 (12)	37 (33)	NS
no	38 (18)	26 (23)	
uncertain	36 (17)	37 (33)	
Should the child have the right to obtain identifying information on the donor at the age of 18?			
yes	12 (6)	20 (18)	NS
no	57 (28)	58 (53)	
uncertain	31 (15)	23 (21)	

OD = oocyte donation, IVF = in-vitro fertilization, NS = not significant.

OD group included: long waiting time for oocytes, unsuccessful embryo transfers and fear of losing their child during pregnancy. However, difficulties during pregnancy were regarded as a self-evident fact, which every oocyte recipient coped with by the strength of her motivation and longing for a child. Positive aspects were the great experience of pregnancy and enormous reward in the shape of a child.

Discussion

In this study, we have collected information from a complete cohort of mothers who delivered after having participated in our oocyte donation programme over a 5 year period. The response rate of 100% in the OD group was exceptionally high, particularly as the questionnaire was not anonymous. In other reported follow-up studies of DI families, only ~50% of the contacted couples have participated (Golombok *et al.*, 1996; Nachtigall *et al.*, 1997), even when the questions were answered anonymously. It is likely that many do not take part because of concern about the issue of disclosure. There is also, however, a risk that those families which experience problems may choose not to participate (Golombok *et al.*, 1996). It is noteworthy that many of the OD and IVF patients, in addition to returning the questionnaire by mail, also spontaneously contacted the investigators by telephone to tell them about their children and family life.

Previous studies have shown that children born after IVF

are healthy (Wennerholm *et al.*, 1991; Brandes *et al.*, 1992; Raoul-Duval *et al.*, 1994; Ron-El *et al.*, 1994; Cederblad *et al.*, 1996). We chose to compare OD and IVF children, as it was important to investigate the implications of the facts that our OD infants had more often been admitted to an intensive care unit or a newborn surveillance unit than had IVF infants, and that singleton OD infants stayed longer in hospital after birth than IVF infants (Söderström-Anttila *et al.*, 1998). Although the ages of the mothers, the duration of pregnancy and the birth weight of the children were similar in the two groups, there were also differences. Oocyte recipients and IVF patients differed as regards infertility background and experience of treatment failures. There were more primiparae and a higher proportion of Caesarean sections in the OD group than in the IVF group. Such conditions may have implications for childhood, and make a very strict comparison inappropriate.

We found that all the children born from donated oocytes over a 5-year period were healthy at the time of the investigation. One girl born at 28 weeks of gestation was only 4 months old, hence her prognosis was unclear, but at least she had recovered well after initial respiratory and infection problems, and no neurological or other defects had been noted. Two children who had undergone major surgical intervention were also healthy. The incidence of diseases and clinical signs in the IVF group did not differ from those in the OD group. In the IVF group there were, however, three cases of neurological disorders, one of which was a serious case of cerebral palsy. The growth development of both the OD and the IVF children was normal. In both groups, the percentages of abnormal height and weight values were within the normal range according to the curves used for Finnish paediatric growth evaluation (Perheentupa and Pere, 1997).

In this study, there were some interesting differences in the answers from the two groups regarding daily care of the child. Fewer OD than IVF parents were concerned about certain aspects of their children's behaviour. The OD mothers observed less fear of strangers in their children compared with the IVF mothers. The OD children were slightly but not significantly more advanced in language development than the IVF children. Feeding and sleeping disorders were uncommon in both groups. The findings in the OD group could cautiously be interpreted as positive signs reflecting both a good parent-infant relationship, and the well-being of the children.

The favourable findings in the OD group could be a reflection of the women's reproductive background. Most of them were young women, who for years had had a diagnosis of permanent infertility. Offered treatment for the first time, they experienced it as an enormous chance. Raoul-Duval *et al.* (1992) noted that oocyte recipients were relaxed, untroubled and less anxious during counselling and they accepted treatment more easily than standard IVF patients. This lack of anxiety in oocyte recipients may have a positive effect on later parenting. Raoul-Duval *et al.* (1994) found that the mother-infant relationship was excellent in a group of mothers who had conceived with donated oocytes.

Another explanation for the lower degree of concern for the children among the OD mothers may relate to the denial of associated negative feelings and realities, which has been

found to occur often in oocyte recipients (Raoul-Duval *et al.*, 1992). A tendency towards such denial could lead to insensitivity to the children's expressions of negative emotions. The interpretation of a baby's crying as a colic symptom instead of need for security or company could be a reflection of this kind of externalization of the child's signals.

Previous studies concerning the parents' opinions on secrecy issues have shown a tendency towards greater openness in oocyte recipients compared with couples requesting DI. In most studies, only 10–30% of DI parents (Robinson *et al.*, 1991; Schover *et al.*, 1992; Golombok *et al.*, 1996; Klock *et al.*, 1996; Brewaeys *et al.*, 1997a), compared with 26–70% of oocyte recipients intended to tell the child about the nature of his or her conception (Kirkland *et al.*, 1992; Pettee and Weckstein, 1993; Weil *et al.*, 1994). On the other hand, almost all parents of lesbian mother families tell their children at an early age that a sperm donor has been used (Brewaeys *et al.*, 1997b). In the present study, only 38% of our OD recipients intended to tell the child about the way he or she had been conceived. Even in cases with a personal donor, only two out of nine aimed to inform the child and seven were uncertain. In an earlier follow-up study of our anonymous oocyte donors' attitudes (Söderström-Anttila, 1995), two-thirds thought that the child should be told about the manner of his or her conception and one-third thought that the child had the right to receive identifying information about the donor. When counselling our oocyte recipients, we present the view of psychologists that secrets may undermine family relationships. For those who choose to be open about oocyte donation, a story-book has been written as a model of how to explain the situation to young children (Hovatta, 1993). However, despite suggestions that it may be more beneficial for parents and children to be open about the method of conception (Daniels and Taylor, 1993), there is no evidence that anonymity or secrecy will have any negative implications for the well-being of these children and their families (Golombok *et al.*, 1996; Nachtigall *et al.*, 1997; Shenfield and Steele, 1997). The parents must themselves decide what is best for them and this decision should be respected.

However, what happens if the secret gets out? Of the oocyte recipients, 73% had told other people, at least family members or a close friend, of the mode of infertility treatment, but only half of these parents intended to inform the child. Such an arrangement seems hazardous. If the parents do not plan to tell the child, they should be encouraged not to tell other family members or friends.

The children in this follow-up study are young and consequently the results very preliminary. The method of collecting data retrospectively using a self-administered questionnaire may also have its limitations (Broderick and Walker, 1995). The questionnaire was directed primarily to the mother and only one question was directed separately to the mother and the father. However, many respondents indicated that the answers to the ethical questions covered both parents' opinions and that a decision was made within the family. By means of this questionnaire we received important information about potential participants for further face-to-face evaluation of their children's development and attachment relationships. Half

of the parents wanted to participate in such an investigation, which is now being planned.

In conclusion, though oocyte donation pregnancies are high risk pregnancies, it appears that the children can develop at least as well as IVF children. The growth and health of children aged 6 months to 4 years were normal and findings which can be related to mother–child interactions seem promising. In the future, it would be important to investigate the quality of the OD children's attachment relationship with their parents. The decision of whether or not to tell the child of its conception should be left to the parents.

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