

Neuropsychological Development of Children and the State of Family Relationships after a Successful In Vitro Fertilization

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Abstract

A retrospective questionnaire method has been used to evaluate the state of neuropsychological development of 20 IVF children and the quality of the relationship between their parents. The development of the children can be qualified as good in some psychological activities (the composition of sentences), they even demonstrated higher abilities when compared to controls. The high quality of care by the mature parents can explain this finding. A very important positive biological, psychological and social impact on the parents of the IVF child, as well as on the child's education, has been proved. If the couples relationship had been troubled by long-lasting infertility treatment, the birth of the IVF child influenced this situation in a very positive manner.

Zusammenfassung

Mit einer retrospektiven Fragebogenmethode wurde der neuropsychologische Entwicklungsstand von 20 nach in vitro Fertilisation geborenen Kindern bestimmt, wie ebenso die Qualität der Beziehung zwischen den Eltern. Die Entwicklung der Kinder kann in bezug auf psychologische Eigenschaften und Fähigkeiten (z. B. Satzbildung) als gut bewertet werden. Zum Teil zeigten sie bessere Fähigkeiten als

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eine Kontrollgruppe. Die besondere Fürsorge und die Reife der Eltern kann dieses Ergebnis erklären. Eine ausgeprägte positive biologische, psychologische und soziale Wirkung auf die Eltern des IVF-Kindes, wie auch auf seine Erziehung, können als erwiesen gelten. Wenn die Beziehung der Eltern durch langwierige Infertilitätsbehandlung belastet war, kann die Geburt des IVF-Kindes diese Situation sehr positiv beeinflussen.

Introduction

Since the birth of the first IVF child in 1978, the technique of in vitro fertilization (IVF) followed by embryo transfer (ET) has become a current method of treatment for certain forms of infertility. The evaluation of the neuropsychological development of IVF children and the state of the family relationships were the tasks of our research.

Material and Methods

The 2nd Department of Gynecology and Obstetrics of Brno University has been dealing with the methods of assisted reproduction, including IVF and ET, for more than 10 years with the result, that over 50 children have been born, using this method. In order to obtain the necessary data, a retrospective questionnaire method was used. The questionnaires were mailed to 36 parents of 38 IVF children whose addresses were at our disposal.

The first group of questions dealt with the neuropsychological development of the children. The children were divided according to age into two groups. Those younger than 2 years of age and those older than 2 years of age. The questions concerned the children's state in the first month of their lives, the frequency of current febrile infections in their first years and their psychomotor development. The authors asked whether the babies were breast-fed or not, and, if so, for how long. They also asked when the children attained different abilities characteristic of a certain age.

The second part of the questionnaire dealt with the family relationships. An American questionnaire standardized for our population – “The scale of Family Relationships According to Hargis and Kollarik” – was used. This method evaluates the social atmosphere of the family. It is designed to measure and describe the interpersonal relationships between the members of the family, the direction of personal development accentuated in the family, and the basic organization structure of the family. The scale of family relationships is a report by the parents of our group about their own perception of the family. It is comprised of 90 questions, divided into 10 groups, that give information about three dimensions of the family:

1. The dimensions of relationships (coherence, expressiveness and conflict).
2. The dimension of personal development (independence, professional success, intellectual, cultural and moral qualities).

3. The dimension of preserving the system – the family (organization, control).

Results

The authors received 20 completed questionnaires from the parents. The mean-time of breast feeding of these infants was 2.75 months. Up to the age of 6 weeks only 13.3 % of newborns were breast-fed, those breast-fed more than 6 weeks comprised 46.6 % and 40 % of the children were not breast-fed. The high percentage of Caesarean sections in this group (the newborn starts with the breast-feeding in our conditions on the 3rd or the 4th day after the Caesarean section) is the probable reason for the high rate of children not breast-fed. Nine children (54 %) suffered at least once from a common febrile infection during their first year. In the following years, each child was ill at least twice a year. None of the children of our group suffered from a chronic disease. Neither congenital malformations nor any metabolic anomalies were diagnosed. The psychomotor development of all children may be qualified as very good. In their first year of life, they were equal to their controls in motor development. In the second and following years, they demonstrated even greater abilities. For instance, they learned at an earlier age to climb a chair, to build simple constructions from blocks, to draw a figure or to tie shoes. From the psychological point of view, a mild advance already appeared after the age of three. The IVF children started to speak sooner than the control children. They were able to compose simple sentences, imitate the sounds of animals and name objects in pictures sooner. Older children oriented themselves to their surroundings, were able to distinguish between right and left, and could say their names and their ages at an earlier age than the control group.

Because the evaluation was performed by the parents of the children, we must suppose a certain overevaluation of the children. Nevertheless, the mastering of some activities at a younger age in comparison with the control population indicates a continuous and careful education of the children. In none of the children did psychomotor retardation or pathologic neuropsychological development appear. The sociability and adaptability of the children of two years and older can be characterized as being good, as well.

The material obtained from the family relationship questionnaire revealed the following findings:

1. In mean values, there is no difference between mothers and fathers. This indicates the collaboration of the couple in completing the questionnaire. They needed to present themselves as a harmonious couple.
2. The families are, first of all, oriented toward a good quality of interpersonal relationships with an accent on the positive emotions between the members of the family. Good humor, peace and a good atmosphere in the family were emphasized.
3. At the same time, the interpersonal conflicts in the family were not denied, and it seems that in this dimension the families are similar to the

control. The parents do not pretend to be “love-birds”: no signs of positive overevaluation were found.

4. In personal relationships, the parents prefer a good family life rather than achieving professional and social success. We may also expect a more sensitive rearing of the children, when compared to a mean Czech or Slovak family. The importance of the emotionally warm milieu was evident.
5. A good value system was built in these families, they are of sound internal organization and neither autocracy nor anarchy was present.
6. In case of the dimension of personal development and an intellectual orientation, the values obtained were identical to the normal population. The expression of ethical values was more pronounced in the Slovak parents than in the Czech respondents. It seems that the ethical problems are of less importance for the Czech respondents than for the Slovak ones.

In conclusion, we may generalize the findings. The investigated families are similar to the control family as concerns the dimension of personal development. They are of a high stability and significantly oriented to the dimension of interpersonal communications. The fact that these families have difficulties in reaching their goal, i.e. the birth of the child, and were obliged to undergo psychological and physical stress, usual in long-lasting treatment of infertility, fortifies this dimension. These persons are psychologically more open in family interpersonal communication than is normal in the current population. Based upon the results obtained from the study of the referred group of families, the authors confirmed the fact that the birth of an IVF child is of very positive biological, psychological and social importance for both parents, and influences the upbringing of these children.

Discussion

A relatively low return of the distributed questionnaires (20 out of 30) is comparative to current sociological research. In our case, this may signify that the couples who have succeeded and given birth to an IVF child after a long-lasting infertility treatment are so socially normalized, that they are no longer psychologically dependent on our Department and thus not motivated to participate in a retrospective study. The need to suppress all the unpleasant experience (the diagnostic and therapeutic methods, the IVF procedure, the psychological stress in expecting menstruation) could influence the low return of the questionnaires also.

The research dealing with the somatic and the psychological development of the IVF children did not show any difference on the psychological adaptation between our group of children and the control population. However, there are more often multiple births with IVF and there is a higher rate of Caesarean sections (2.5 ×). Also, 21 % of the deliveries are premature, with 33 % of the newborns in the birthweight category below 2500 g (Spencley et al., 1986). According to the results of the authors, the psychological adaptation of the IVF children is not only on the level of the current population, but it is superior in

certain activities. The fact, that these so long awaited IVF children are the object of the maximum care by the parents, may explain these findings.

In the most progressive assisted reproduction centers, the number of IVF children exceeds 1000. The application of IVF techniques not only facilitates the successful treatment of infertile couples, but evokes further ethical problems concerning human reproduction. The question of the surnumerous embryos is raised as well as the donorship of the gametes and the surrogacy. Very unusual court trials influence the public opinion as well as the attitudes of the professionals. These problems are reflected in the reaction of civil, professional and governmental organizations. This may result in the cathegoric negation of the methods of IVF en block. Contradictory to this negative approach, our results show that the birth of the IVF child often positively influences problematic couple relationships and that the long awaited child is educated with great care, which evidently has an impact on his psychosomatic development.

A comparison of the neuropsychological development of "the very wanted IVF children" and the children "born unwanted" (those born after the refusal of the demand for therapeutic abortion) would be interesting. Two large prospective studies of unwanted children (David et al., 1988; Forssan et al., 1981) showed children with a higher score of social maladaptation and psychological subdeprivation as compared to the normal population. Considering the fact that the IVF children of the present study are not yet in the age range of the children of the cited reports (9–15 years), the comparison can only be hypothetical.

Conclusion

A very good neuropsychological as well as somatic development of the IVF children and an evident improvement of the interpersonal relationships in the family after the birth of the IVF child, seems to the authors to be a valuable argument against the task of moral descreditation of IVF as a method and against the efforts to hinder its development.

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