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Somatopsychic Reactions Caused by Diagnostic Procedures in Pregnancy

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Abstract

Somatopsychic reactions are defined as non-specific, personality-depended, emotional-cognitive coping strategies with mainly somatic diseases or medical interventions. This concept is applied to several important diagnostic measures in pregnancy like ultrasound, amniocentesis and chorionic villous sampling.

These tests carry common features, which may interfere with early mother-infant bonding and solution of ambivalence towards the pregnancy, and which cause their psychological impact. The object of the test is the fetus itself, and the methods are applied at a very early stage of pregnancy. Finally, it is the explicit aim of AFP screening and of AC/CVS, and implicitly of US as well, to search for malformations or chromosomal aberrations.

Favourable reactions to the procedures include reassurance, especially in complicated pregnancies and the possibility of better patient-doctor interaction. By amniocentesis couples have to meet ethical dilemmas which call for intensive coping mechanisms.

The considerations presented have consequences for everyday practice, e. g. in the question of telling the baby's sex antenatally.

Zusammenfassung

Somatopsychische Reaktionen werden definiert als unspezifische, persönlichkeitsabhängige, emotional-kognitive Bewältigungsstrategien von körperlichen Erkrankungen oder medizinischen Eingriffen. Dieses Konzept wird im folgenden auf einige wichtige diagno-

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stische Maßnahmen in der Schwangerschaft angewandt, wie etwa Ultraschall, Amniozentese und Chorionbiopsie.

Diese Tests haben gemeinsame Eigenschaften, die die frühe Mutter-Kind-Beziehung und die Auflösung der Ambivalenz gegenüber der Schwangerschaft beeinflussen können, und somit auch für die psychologischen Auswirkungen der Tests verantwortlich sind. Das Objekt der Tests ist der Fetus selbst, und die Methoden werden in einer sehr frühen Phase der Schwangerschaft angewandt. Schließlich ist es das ausdrückliche Ziel des AFP-Screening und der Amniozentese/Chorionbiopsie, und implizit auch des Ultraschalls, nach fetalen Mißbildungen oder chromosomalen Aberrationen zu fahnden.

Günstige Reaktionen auf die Untersuchungen sind Beruhigung der Mutter, speziell in Risikoschwangerschaften, und die Möglichkeit einer besseren Arzt-Patienten-Beziehung. Bei der Amniozentese sind die betroffenen Paare mit ethischen Dilemmata konfrontiert, die einer Lösung und Bewältigung bedürfen.

Diese Überlegungen haben auch Konsequenzen für die tägliche Praxis, etwa bei der Frage der pränatalen Mitteilung des fetalen Geschlechts.

Introduction

In recent years psychosomatic research and clinical work have been enlarged by the new aspect of somatopsychic reactions. By this term we denominate the experience of and the coping with medical interventions and with diseases, which are exclusively or predominantly caused by organic reasons. Janssen (1987) defines "these processes called 'somatopsychic' as non-specific, personality-depended, emotional-cognitive coping with mainly somatic diseases." Lipowski (1977) introduced the term "somatopsychology" into the the English literature with an almost identical meaning as the above.

The study of somatopsychic interactions is relevant for the theory of psychosomatic medicine as a whole. They necessitate "nothing less than a reversal of the usual concepts of etiopathogenetic pathways: it is not the psychological conditions which lead to symptom formation, but the autonomous somatic processes call for psychological coping, which may in its turn (re)activate neurotic conflicts hitherto under control" (Steffens and Kächele 1988).

Phenomenologically, somatopsychic reactions have been described from different theoretical backgrounds. The psychoanalytical concept of defense mechanisms ('Abwehr-Vorgänge'), as it was elaborated by Anna Freud (1936) based on the work of her father, describes a number of different ways how the individual deals with external and internal threats. Most important among them are denial, regression, rationalization, symptom formation and sublimation. Cognitive psychology contributed the concept of coping (Lazarus and Folkman 1984) and of adaptation (Heim 1988), which are both well applicable to clinical situations. Authors of all orientations emphasize the importance of emotional processes in somatopsychic reactions. There have been several attempts to reconcile analytic

and cognitive thought (e. g. Haan 1977), and in recent years a convergency of the two schools, at least on the grounds of coping with disease, became apparent (Steffens and Kächele 1988, Heim 1988).

The course, the intensity and the outcome of somatopsychic reactions are influenced by a number of factors. They may be divided into two groups: factors stemming from the personality of the sick individual and factors of the particular disease. Leading personality factors include age, sex, socioeconomic status, ego functions and social support. Factors originating in the disease itself are often associated with loss (of organs, functions, freedom, potential) or threat of loss. These general considerations hold true for the whole range of illnesses in all medical fields.

The diseases acting as causes for somatopsychic reactions in gynecology and obstetrics may be allocated to four different entities (Table 1).

Table 1. Leading reasons for somatopsychic reactions in gynecology and obstetrics (Langer 1990)

1. Organic diseases (genital and breast cancer, fetal malformations, spontanous abortion)
2. Loss of organs or of their function (Hysterectomy/ovarectomy, vulvectomy, mastectomy; sterilization)
3. Genital malformations (Vaginal agenesis, congenital virilizing adrenal hyperplasia)
4. Diagnostic procedures (IvF; ultrasound, amniocentesis, chorionic villous sampling, α-Fetoprotein screening)

These groups of diseases and conditions also cause certain aspects which are **specific** of gynecologic or obstetric conditions and which are responsible for the particular impact of gynecologic diseases. The three central ones are female identity, generativity and mother-fetus bonding. Thus, gynecologic diseases may concern or even question female gender identity and body image, they may entail impairment or complete lack of generativity and they may interfere with mother-fetus bonding. The vulnerable phase of the gradual adaptation to pregnancy and the developing relation between the pregnant woman and her baby presents the main area of interest when studying the reactions to prenatal diagnosis.

Psychological Sequelae of Prenatal Diagnosis

It is only 5–15 years, that the three most common methods of prenatal diagnosis – ultrasound (US), α-Fetoprotein (AFP) screening and amniocentesis/chorionic villous sampling (AC/CVS) – have become routine methods in pregnancy surveillance. These methods have some features in common, which distinguish them from other, conventional procedures like blood pressure, blood and urine testing, etc. and which are decisive for their psychological sequelae. First, the object of the test is not the maternal organism any more, but the fetus

itself (Reinold 1982). Second, these methods may be applied and will yield results at a very early stage of pregnancy. Both these two points are directed towards early mother-infant bonding and the delicate balance of ambivalence, which is an obligatory and physiological concomitant of every first trimester pregnancy. Finally, it is the explicit aim of AFP screening and of AC/CVS, and implicitly of US as well, to search for malformations or chromosomal aberrations.

Ultrasound (US)

There is a wide range of positive reactions to US as a routine method concerning the dimensions acceptance, mood and body image. An overwhelming majority of women consider US useful and meaningful (Campbell et al. 1982), they feel reassured and safer after the examination (Ringler et al. 1985). After US pregnant women experience their own body as significantly more pleasant, relaxed, stronger and with less fear (Langer et al. 1988).

It should be emphasized that the beneficial effects of US examinations become even more apparent in populations 'at risk'. US reduced anxiety level in women; this effect was more pronounced in women who had an US control after an elevated result of AFP screening (Tsoi et al. 1987). Similarly, US brought about a reduction of anxiety in elder primiparae awaiting amniocentesis (Cox et al. 1987). In our study (Langer et al. 1988) primiparae without steady partner, who psychosocially belong to a high risk group, changed their body perception significantly from "sick" to "healthy".

The impact upon the image of the fetus and mother-fetus bonding bears a number of positive aspects, as well. The baby is perceived significantly stronger, more active, beautiful and well known. The feature that fascinates and intrigues pregnant women most when seeing US are fetal movements. The sonographer may interpret these movements as indicators of fetal well-being, and by telling his observation to the patient may thus reassure her (Reinold 1982).

However, concerning the temporal process of the mother-fetus-relation Campbell (1982) assumed, that via ultrasound the mother experiences the child as a "dependent, but separate being" well before the onset of fetal movements. This may mean that a psychophysiological process is advanced into an earlier phase than it would take place normally.

This anticipation of developments prior to their appropriate time can be illustrated by the question of telling the baby's sex after an US examination (or AC/CVS). Phantasies about the unborn play an important part in the 'transition to parenthood'. They concern both the baby's sexual identity as well as the mother's (or father's) **own anticipated role** as a mother (or father) of a boy or a girl. If the baby's sex is told, part of the creative challenge is lost, and the range of the phantasies is reduced. Moreover, the disclosure of the fetal sex does not entail any consequences, neither in the medical field (perhaps with the exception of some rare hereditary diseases) nor in terms of personal conduct of the parents nor in preparation for childbirth. The possibility of errors should also be mentioned, be it merely as a wrong diagnosis or due to a genital malformation of the fetus with ambiguous genitalia (Kosik 1986). In the latter case, sex assignment and rearing is ever more difficult if parent expected "the other". Telling the

baby's sex should therefore be omitted, or the questions of the parents concerning the baby's sex be used as an opener of a discussion on phantasies and fears concerning pregnancy, prenatal diagnosis and birth.

A good patient-doctor relationship during US examination is essential, because the beneficial sequelae of US largely depend upon the interaction between sonographer and patient. Several studies (Campbell et al. 1982, Cox et al. 1987) underscored the significant differences between groups of women who received high feed-back (i. e. ample information about the screen image) and those who did not. The latter remained indifferent and did not show the improvement in mood and anxiety which was present in women with high feed-back.

Amniocentesis (AC) and Chorionic Villous Sampling (CVS)

AC and CVS are invasive methods of prenatal diagnosis with an associated abortion risk of 0.5 % and 2–4 %, respectively. The pregnant woman therefore has to weigh the impact of a child with Down's Syndrome versus an abortion induced by the procedure. Therefore Endres (1987) pointed out, that "prenatal diagnosis makes high demands on the psychological coping mechanisms of the individual [and the couple], and decisions have to be made, which have never been asked for till now". Ethical dilemmas of even graver dimensions follow the diagnosis of mild fetal malformation or chromosomal aberration or in the case of a planned bone marrow donation of favor of a sibling of the fetus (Fost 1989). There is no simple solution to these problems, and the psychosomatic viewpoint does not offer one, either. It may only make the conflicts transparent (Ringler and Langer 1989), and remind the physician to be constantly aware of them and his own role in the process.

The acceptance and the take-up of AC/CVS by elder gravidae is high and about 50–66 % of all women eligible (i. e. > 35a) have the test done (McGovern 1986, Murken 1988). Besides moderate to high state anxiety pre-test (Robinson 1985), the most important consequence is a restraint within mother-fetus bonding before the test (Silvestre and Fresco 1982). When deciding for prenatal diagnosis, most women conscientously consider an unfavourable result and an induced "genetic" abortion. As if it were a protection against a potential loss of an already beloved child, 73 % of all women interviewed withheld the emotional engagement into the relation to the fetus up to the result of the cytogenetic testing (Sjögren and Uddenberg 1988). However, this reservation was only temporary and did not have a detrimental influence on eventual mother-infant bonding.

Conclusion

Summarizing, it may be said that diagnostic methods discussed above have changed the experience of pregnancy. Their image of being "soft technology" with little side-effects holds true in the somatic field, only. Psychologically they are powerful agents which may interfere both beneficial and detrimental. The obstetrician, sonographer or genetic counsellor ought to be constantly aware of

this while he/she is doing an examination which for him/her is daily routine, but for the pregnant woman an act with far-reaching consequences.

Several important questions still remain unsolved. Among new techniques of pregnancy surveillance, most interesting seem to be potential psychological sequelae of Doppler ultrasound, which is increasingly performed both in normal and compromised pregnancies. the consequences of an assessment of placental and umbilical perfusion, i. e. of a 'maternal capability', seem to be a rewarding issue for further research. Furthermore, the whole dimension of effects of diagnostic procedures on the fetus itself remains completely unclear. These questions of prenatal psychology (as compared to psychology of pregnancy and birth) are very difficult to evaluate and still today depend more upon belief than empirical data. Maybe that with the development of ever better methods we may gain insight into the fetus' psychological as well as physical well-being.

References

Campbell, S., Reading, A.E., Cox, D.N., et al. (1982). Ultrasound scanning in pregnacy: the short-term psychological effects of early real-time scan. *J Psychosom Obstet Gynecol* **1**(2), 57–61

Cox, D.N., Witman, B.K., Hess, M., Ross, A.G., Lind, J., and Lindahl, S (1987). The psychological impact of diagnostic ultrasound. *Obstet Gynecol* **70**, 673–676

Endres, M. (1987). Psychologische Aspekte genetischer Beratung in der pränatalen Diagnostik. In: Murken, J. (ed.) *Pränatale Diagnostik und Therapie*. Enke, Stuttgart, pp. 283–298

Fost, N. (1989). Guiding principles for prenatal diagnosis. *Prenat Diagn* **9**, 335–337

Freud, A. (1936). *Das Ich und die Abwehrmechanismen*. Kindler, München (1968)

Haan, N. (1977). *Coping and Defending – Processes of self-environment organization*. Academic Press, New York

Heim, E. (1988). Coping und Adaptivität: Gibt es geeignetes oder ungeeignetes Coping? *Psychother Med Psychol* **38**, 8–18

Janssen, P.L. (1987). Zum Verstehen psycho-somatischer und somato-psychischer Vorgänge. Beiträge der Psychoanalyse. *Z Klin Psychol Psychoth* **1**, 62–73

Kosik, J.W., Woods, R., and Nelson, R.M. (1986). Antenatal prediction of sex. *Acta Obstet Gynecol Scand* **65**, 659–660

Langer, M., Ringler, M., and Reinold, E. (1988). Psychological effects of ultrasound examinations: changes of body perception and child image in pregnancy. *J Psychosom Obstet Gynecol* **8**(3), 199–208

Langer, M. (1990). *Somatopsychische Gynäkologie*. Springer, Wien New York

Lazarus, R.S. and Folkman, R. (1984). *Stress, appraisal, and coping*. Springer, New York

Lipowski, Z.J. (1977). Psychosomatic Medicine in the Seventies: An Overview. *Am J Psychiat* **134**, 233–244

McGovern, M.M., Goldberg, J.D., and Desnick, R.J. (1986). Acceptability of chorionic villi sampling for prenatal diagnosis. *Am J Obstet Gynecol* **155**, 25–29

Murken, J. (1987). *Pränatale Diagnostik und Therapie*. Enke, Stuttgart

Reinold, E. (1982). Das vorgeburtliche Verhalten des Feten aus der Sicht des Geburtshelfers. In: Hau, T. and Schindler, S. (eds.) *Pränatale und perinatale Psychosomatik*. Hippokrates, Stuttgart, pp. 161–171

Ringler, M. (1989). The influence of prenatal diagnosis on parent-fetus bonding. In: van Hall, E. (ed.) *Women's Health in the 1990s*. Parthenon, Carnforth, pp. 145–146

Robinson, J.O., Hibbard, B.M., and Laurence, K.M. (1984). Anxiety during a Crisis: Emotional Effects of Screening for Neural Tube Defects. *J Psychosom Res* **28**(2), 163–169

Silvestre, D. and Fresco, N. (1980). Reactions to Prenatal Diagnosis: An Analysis of 87 Interviews. *Amer J Orthopsychiat* **50**(4), 610–617

Sjögren, B. and Uddenberg, N. (1988). Prenatal diagnosis and maternal attachment to the child-to-be. *J Psychosom Obstet Gynecol* **9**, 73–88

Steffens, W. and Kächele, H. (1988). Abwehr und Bewältigung – Vorschläge zu einer integrativen Sichtweise. *Psychother Med Psychol* **38**(1), 3–7

Tsoi, M.M., Hunter, M., Pearce, M., Chudleigh, P., and Campbell, S. (1987). Ultrasound Scanning in Women with Raised Serum Alpha Fetoprotein: Short Term Psychological Effects. *J Psychosom Res* **31**(1), 35–39