CHAPTER 1

Introduction

Transsexualism and sex reassignment

Introduction

The phenomenon of transsexualism refers to individuals who experience an irreconcilable discrepancy between the biological sex they were born with and the opposite biological sex they feel they belong to. Transsexuals often express to feel alienated from their body. The experienced discrepancy is not in the least restricted to the sexual functions of the individual. Resolve of this discrepancy is characteristically sought in a pursuit of sex reassignment (SR).

In modern Western societies individuals pursuing SR have not always been taken seriously. The wish to undergo such invasive and irreversible surgery as SR, while having a normal and healthy body, has often been considered delusional. This view of persons with cross-gender identity and/or behavior, however, is not universal. In India, for instance, the Hijaras are castrated men or men with ambiguous genitals, who dress and experience themselves as women. They constitute an institutionalized third gender role that is not only tolerated, but also appreciated. A few thousands Hijaras are estimated to live in India (Jani and Rosenberg, 1990; Nanda, 1985). Another example is the country of Oman, where certain males dress, unlike other males, in colored clothes, though they are not allowed to wear the traditional female attire. They wear make-up and perfume and are permitted to share the social life and activities of women, but retain their male name. These men, called "xanith", have a distinct, but not necessarily lower status (Wikan, 1977).

Cross-dressing by men as well as by women has been done since ancient times and has been reported in western and non-western cultures (see Kuiper, 1991). Transsexualism is also assumed to have been present since early times by some authors (Bullough, 1975; Green, 1968; Pauly, 1965). Cross-gender identity and/or behavior appear to be signs of an old phenomenon that has only recently been identified. It is very likely that a proportion of the persons who exhibited cross-gender behavior in earlier times would presently be diagnosed as transsexuals. Before medical knowledge and expertise was developed enough to provide transsexuals with hormone and surgical treatment, living as someone of the opposite sex, but, with the bodily and sexual characteristics of their own biological sex, was the only solution for their psychological suffering. Not an ideal one, as may be concluded from the relatively high percentages of suicides (± 15%) and auto-mutilation: tying away the breasts in female-to-male transsexuals (40%), who had not (yet) undergone SR, and pushing up of the testicles and/or pushing away of the penis (60%), mutilation of the scrotum (6%), and occasionally self-castration or penectomy (amputation of the penis) in male-to-female transsexuals (Eicher, 1984).

In 1966, the influential book of Harry Benjamin, "The Transsexual Phenomenon" (Benjamin, 1966), made many clinicians aware of potential benefits of SR. This undoubtedly prompted the rapidly increasing flow of articles on transsexualism since that time. It also contributed to the changing attitude towards SR among professionals over the past thirty years. Nowadays, in several countries transsexuals are diagnosed and treated by specialists, sometimes even in multidisciplinary gender teams. In honor of Harry Benjamin and his merits in the advancement of professional care for transsexuals, the international professional organization in the field of transsexualism and other gender identity disorders was named after him (The Harry Benjamin International Gender Dysphoria Association, HBIGDA). Meanwhile, more progress has been made in the treatment of transsexuals. In many countries, SR is often paid for by national health insurance (Cohen-Kettenis and Wålinder, 1987; Peterson and Dickey, 1995) and legal provisions have made birth certificate adaptations possible (Will, 1995).

In this chapter we will consider the most commonly used definitions, describe the development of gender identity disorder and persistence into adulthood, give figures on prevalence and sex ratio, summarize the main etiological theories, and discuss relevant aspects of clinical practice.

Definitions

Hirschfeld was the first to describe a definition of the term transsexual in 1923 (Hirschfeld, 1923). In those days, variants of gender identity problems, such as transvestism, effeminate homosexuality, and transsexualism, were not yet being distinguished. It was not until the late forties, that the term was used to designate individuals we currently diagnose as transsexuals: those who aspire to or actually live permanently in the social role of the opposite gender and who want to undergo SR (Cauldwell, 1949). The desire for SR originates from an experienced discrepancy between one's sex of assignment (biological sex), on the one hand, and one's basic sense of self as a male or female (gender identity), on the other hand (Cohen-Kettenis and Gooren, 1999). Gender role is the public manifestation of someone's gender identity (Money, 1994). Gender dysphoria is the term used for distress resulting from the irreconcilable discrepancy between the individual's gender

identity and sex of assignment.

In 1980, transsexualism was introduced in the Diagnostic and Statistical Manual of Mental Disorders-Third Edition (DSM-III, American Psychiatric Association, APA, 1980). In the DSM-IV (APA, 1995), the most recent version of this widely used psychiatric classification system the term transsexualism is abandoned. Instead, the term Gender Identity Disorder (GID) is applied. The term is used for individuals who show a strong and persistent cross-gender identification and a persistent discomfort with their anatomical sex or a sense of inappropriateness in the gender role of that sex, as manifested by a preoccupation with getting rid of one's sex characteristics or the belief to be born in the wrong sex. The term GID encompasses transsexualism as well as other severe GIDs. The diagnosis GID is consequently more extensive than the diagnosis of transsexualism, and no longer implies a specific treatment (see Table 1). The other currently used classification system is the International Statistical Classification of Diseases and Related Health Problems-Tenth Revision (ICD-10 of the World Health Organization, 1992). This system still lists transsexualism as a diagnosis, which makes it easier to make treatment decisions (i.e., referral for SR) on the basis of the diagnosis (i.e., transsexualism). The ICD-10, however, like earlier DSM-versions, still applies different criteria for boys and girls in the diagnosis of GID in childhood.

Table 1: DSM-IV Diagnostic Criteria for Gender Identity Disorder

A. A strong and persistent cross-gender identification (not merely a desire for any perceived cultural advantages of being the other sex).

   In children, the disturbance is manifested by four (or more) of the following:

   (1) repeatedly stated desire to be, or insistence that he or she is, the other sex.

   (2) in boys, preference for cross-dressing or simulating female attire; in girls, insistence on wearing only stereotypical masculine clothing.

   (3) strong and persistent preferences for cross-sex roles in make believe play or persistent fantasies of being the other sex.

   (4) intense desire to participate in stereotypical games and pastimes of the other sex.

   (5) strong preference for playmates of the other sex.

In adolescents and adults, the disturbance is manifested by symptoms such as a stated desire to be the other sex, frequent passing as the other sex, desire to live or be treated as the other sex, or the conviction that he or she has the typical feelings and reactions of the other sex.

B. Persistent discomfort with his or her sex or sense of inappropriateness in the gender role of that sex.

In children, the disturbance is manifested by any of the following: in boys, assertion that his penis or testes are disgusting or will disappear or assertion that it would be better not to have a penis, or aversion toward rough-and-tumble play and rejection of male stereotypical toys, games, and activities; in girls, rejection of urinating in a sitting position, assertion that she has or will grow a penis, or assertion that she does not want to grow breasts or menstruate, or marked aversion toward normative feminine clothing.

In adolescents and adults, the disturbance is manifested by symptoms such as preoccupation with getting rid of primary and secondary sex characteristics (e.g., request for hormones, surgery, or other procedures to physically alter sexual characteristics to simulate the other sex) or belief that he or she was born the wrong sex.

C. The disturbance is not concurrent with a physical intersex condition.

D. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Code based on current age:

302.6 Gender Identity Disorder in Children

302.85 Gender Identity Disorder in Adolescents or Adults

Specify if (for sexually mature individuals):

Sexually Attracted to Males

Sexually Attracted to Females

Sexually Attracted to Both

Sexually Attracted to Neither

Cross-gender development

Regular adult gender identity and gender role behavior develop gradually over a long period of time and are influenced by multiple, interacting factors, active at different developmental periods (Fagot, 1985; Golombok and Fivush, 1994; Maccoby, 1988; Maccoby and Jacklin, 1987). Much of the evolvement of this complex process has been revealed to us over the last decades, yet a large part of it still remains elusive, as can be witnessed from the manifestation of one particular atypical gender development: the phenomenon of transsexualism.

In children, strong feelings of belonging to the opposite sex can begin in toddlerhood (Zucker and Green, 1992). Young children may actually state to be or will eventually become members of the opposite sex. Parents of boys with GID often report that their sons almost exclusively take the role of princess or fairy in fantasy plays, using towels to fake long hair or speaking with a high-pitched voice. Most of these boys strongly prefer girls as playmates. They often show distress about being a boy or having male genitals. Some boys with GID believe that the penis will automatically fall off when they grow up, or, they want to trim it off. Despite attempts from fathers who teach their sons to urinate in a standing position, these boys will sit down when urinating.

Girls are equally early as boys with manifestations of typical cross-gender behavior, but their cross-dressing is less conspicuous. Girls with GID typically wear their hair very short and are regularly mistaken for boys. They prefer boys' toys, and particularly like to engage in sports, ball games, and rough-and-tumble play. For girls with GID, boys are the preferred playmates. Like in boys without GID, friendships of girls with GID seem to be more focused on common activities and interests than on sharing of intimacy. Because cross-gender behavior is more accepted in girls than in boys, girls with GID are less ostracized and teased than boys with GID. Still, they can be very distressed about being a girl and having a female body. Unlike boys with GID, who usually dislike their own genitals, girls with GID are often preoccupied with wanting to have a penis. Some girls put handkerchiefs or tiny stuffed animals in their underpants to pretend they have a penis. Whereas boys sit down when urinating, girls attempt to urinate as males, usually in a standing position.

In a recent study young children with GID were found to less likely label the sexes correctly than children without GID, and to make more mistakes when answering questions regarding the stability of gender in time and across situations (Zucker et al., 1999).

This suggests a developmental lag with regard to several aspects of gender learning, implying that children with GID are more cognitively confused about gender than other children. On the other hand, these "cognitive errors" might actually be distortions of reality, motivated by a strong wish to be someone of the opposite sex. Frequently, when children with GID are confronted with adverse reactions to their cross-gender behavior and desires, they decide to keep their wish to belong to the opposite sex to themselves. As a result, the continuity of their wish to change sex does not become evident until SR is pursued after puberty.

Adolescents attending gender clinics because of their extreme forms of GID have usually been children with GID. They have attempted to deal with their gender feelings in many different ways. Some parents who have witnessed extreme and continuous cross-gender behavior of their children for years, allowed them to change their social role at very early ages. Consequently, many of these children started high school as a clearly cross-gendered child. An increasing number of young adolescents already lives completely in the opposite sex role when they apply for SR. As they mature, falling in love is also part of growing up for youngsters with GID. Some have sexual relationships with same-sex peers. Adolescents handle such contacts in various ways, ranging from having crushes at a great distance from the person they care for to actual dating and sexual activity. Whenever youngsters participate in sexual activity, they invariably exclude involvement of their primary sex characteristics from their lovemaking.

In contrast, a second group with extreme GID consists of adolescents that try to adjust to gender typical norms, mostly because they fear the consequences if their gender problem would become public. They prefer to conceal their gender problem by dressing and behaving as inconspicuously as possible. For them, the pace at which they will make changes in their appearance and behavior, in agreement with their cross-gender identity, and when they confide in others about themselves, largely depends on the attitudes and support from those others. The GID in these adolescents does not always become apparent from their overt behavior or appearance.

Adolescents with less extreme forms of GID are a heterogeneous group. They show a mixed pattern of past and present gender and non-gender related symptoms. Some initially have a strong desire for SR, but change their minds when they understand other non-gender issues need to be attended first. Others do not even have a wish for SR.

Instead, they are confused about their gender identity and want to explore their feelings. Some of these adolescents turn out to be ego-dystonic homosexuals. In even others the gender problem seems to be secondary to psychopathology, like in pervasive developmental disorder.

Persistence of childhood GID

Most children with GID will turn out not to be transsexuals after puberty. This phenomenon, as appears from prospective studies (Green, 1987; Money and Russo, 1979; Zucker and Bradley, 1995; Zuger, 1984), is more strongly related to later homosexuality than to later transsexualism. This finding is supported by retrospective studies, in which male and female homosexuals were found to recall more cross-gender behavior in childhood than male and female heterosexuals (e.g., Bell and Weinberg, 1981; Whitam and Mathy, 1986).

Zucker and Bradley (1995) described that only 6% of 99 boys with GID, from six North-American follow-up studies, had a transsexual outcome. However, the low rates of transsexuals found in prospective studies might be an underestimation of true numbers (Cohen-Kettenis, 2001). Zucker and Bradley (1995) concluded that 14% of 45 children with GID from their own follow-up study, who were seen at the Child and Adolescent Gender Clinic of the Clarke Institute of Psychiatry in Toronto, had a wish for SR in adolescence. Cohen-Kettenis (2001) reported on children who were seen at the Child and Adolescent Psychiatry Department of the University Medical Center Utrecht. She found that 23% (8 girls and 9 boys) of 74 children with GID applied for SR in adolescence. This is obviously a higher percentage than is usually mentioned in the literature. This higher percentage of SR applicants among the Utrecht patients might be explained by the fact that this clinic is the only gender clinic in a small country. The relatively close distance to the clinic may lower the threshold for parents to seek help, once they are convinced that their children's gender identity problem has remained or intensified.

Nevertheless, it should be noted that most children with GID do not become transsexuals.

Prevalence of GID

Epidemiological studies providing data on the prevalence of childhood GID do not exist. Estimates of transsexualism among adolescents and adults (15 years and above) are usually based on the number of transsexuals that are treated at major centers, or derived from surveys among registered psychiatrists concerning the number of transsexual patients they treat within a particular country or region. The numbers and sex ratio's vary widely across studies. These differences may reflect the relative inaccessibility of SR and the social stigma of transsexuals in the sixties and seventies, resulting in a lower prevalence (Eklund, et al., 1988; Tsoi et al., 1977), differences in methodology (Weitze and Osburg, 1996), differences in the number of subtypes of MFs (Landén et al., 1996), or cultural factors (Brzek and Sipova, 1983; Godlewski, 1988). Recent studies indicate prevalences of about 1:10.000 for males and 1:30.000 for females in the Netherlands (Bakker et al., 1993). The highest prevalence was reported in Singapore with 1:2900 for males and 1:8300 for females (Tsoi, 1988). In most studies, transsexualism is more common in men than in women. Most often a 3:1 ratio is reported (for a review, see Landén et al., 1996).

Theories about cross-gender development

Subtypes of gender identity disorders

From early on gender identity problems have been suggested to consist of various subtypes (Hirschfeld, 1918). Nowadays, professionals working in this field, commonly agree that indeed even the most extreme form of GID is not a homogenous phenomenon. Blanchard distinguishes between various subtypes of *non*homosexual transsexuals and homosexual transsexuals and actually investigated similarities and differences between the groups (1985, 1988, 1989a, 1989b, 1989c). From the studies he concluded that the *non*homosexual subtypes are more similar to each other than any of them is to the homosexual subtype. He suggests that these two subtypes are expressions of two separate but related etiological pathways.

Psychological theories

A wide variety of psychological mechanisms have been put forward to explain the development of a cross-gender identity. Particularly parental factors, such as father absence, problematic psychosexual development of the parents, or parental dynamics, such as a maternal wish for a daughter, and extreme closeness to the mother ("blissful symbiosis"), have been held responsible for the development of GID (Kuchenhoff, 1988; Levine and Lothstein, 1981; Meyer, 1982; Stoller, 1968, 1975, 1979; Springer, 1981). Most theorists

perceived such parental characteristics to deprive children of sufficient possibilities to identify with the same sex parent and/or expose them to cross-gender reinforcement patterns. However, in a number of studies no solid evidence for these hypotheses was found (Green, 1987; Roberts et al., 1987; Zucker et al., 1994; for a review, see Zucker and Bradley, 1995).

Stoller (1968) was the first to observe that boys with GID were relatively attractive. Some studies have found support for this observation in research among boys (Green, 1987; Zucker et al., 1993), whereas the opposite was found for girls with GID (Fridell et al., 1994). Green (1987) found that mothers of boys with GID retrospectively described their sons as more beautiful and feminine than mothers of control boys did.

Thus, the physical (facial) traits of children with GID may indeed have prompted or stimulated parents to apply cross-gender role reinforcement patterns. However, it remains very unlikely that these characteristics will by themselves be sufficient to induce a GID.

Bio-psychological theories

Over the past ten years two rather comprehensive theories have been expounded to explain that GID originates from a combination of biological and psychological factors.

According to Coates' theory (1992), multiple cumulative risk factors that (must) converge during a critical period of development account for the onset of a cross-gender identity. Coates argues that some children are vulnerable to develop GID because of their temperament. She elaborates that this temperament is further shaped by the preference of boys with GID to primarily play with girls in their preschool years. As a result, they have little or no experience with other boys, preventing them from becoming familiarized with masculine play skills, such as throwing a ball or rough-and-tumble play. Psychological dysfunction of the mother, resulting from multiple traumatic experiences, is supposed to predispose the child to chronic separation anxiety and depression. In an attempt to overcome the feared loss of mother, boys will develop cross-gender symptoms because they confuse "having Mommy" by "being Mommy".

Zucker and Bradley (1995) conceive cross-gender identification as a response (i.e., coping mechanism) to anxiety, in which identification with the opposite sex is more secure, safe or valued. They suggest this will occur, only when two conditions are met.

First, children must seek a solution to survive because they are in profound emotional distress. General factors, inherent to the constitution of the child, the parents, or both, may cause the distress. Second, a variety of specific factors are supposed to create a situation, during a sensitive developmental period (i.e., when the child is developing a coherent sense of self), in which the resulting anxiety induces cross-gender behavior. Since various general factors can cause the distress in the first place, and different specific factors can subsequently induce cross-gender behavior as a solution to cope with the distress, a cross-gender identity may be reached through different pathways.

Some support has been found for the impact of factors considered crucial by Zucker and Bradley for the development of GID (Marantz and Coates, 1991; Rekers et al., 1983; Zucker and Bradley, 1995; Zucker et al., 1996).

Biological theories

Two biological theories have been generated to explain the origin of transsexualism. One involves organizational effects of sex hormones on the central nervous system; the other pertains to explanations for the often-found birth order and sibling sex ratio differences.

Organizational effects of sex hormones. In humans, a number of hypothalamic nuclei have been reported to be sexually dimorphic with respect to size and/or shape, for instance the central subdivision of bed nucleus of the stria terminalis (BSTc) (Gorski, 1999; Zhou et al., 1995). These sex differences in the hypothalamus are thought to underlie sex differences in gender identity, reproduction, and sexual orientation. A discrepancy between this brain sexual differentiation and genital differentiation has been invoked as an explanation for the most extreme form of GID, transsexualism. Studies that found the BSTc in six MFs to not only be significantly smaller than in males, but also completely in the size range of females, support this theory. The opposite was found for a FM transsexual (Kruijver et al., 2000; Zhou et al., 1995). As non-transsexual males, who were administered estrogens for medical reasons, did not show the smaller BSTc, it is unlikely that the size differences found in the transsexuals had been caused by their hormone treatment. In addition, no convincing evidence exists, that altered (peripheral) hormone levels play a role in developing GID, although they can trigger behavioral changes (see Meyer-Bahlburg, 1984).

Organizational effects of prenatal and perinatal androgens alone do not explain

the development of transsexualism. If that were true, we would expect genetic females who are prenatally exposed to abnormal high levels of testosterone (e.g., girls with congenital adrenal hyperplasia, CAH) to develop a male gender identity even if they had been raised as girls. In general, this is not the case, although a few of such reports have been made (Meyer-Bahlburg et al., 1995).

Birth order and sibling sex ratio. Statistical evidence suggests that birth order and sibling sex ratio (ratio of brothers to sisters) could be related to the development of transsexualism. Different mechanisms have been proposed to explain these findings (Blanchard, 1997, 2001). However, no conclusive evidence exists.

Blanchard (1998) found that homosexual men have a higher mean birth order than heterosexual men, primarily because they have a greater number of older brothers. Blanchard (1998) argues that mother's antibodies to Y-linked minor histocompatibility antigens (H-Y antigens) can prevent fetal brains from differentiating in the male-typical direction. He explains a high birth order of homosexual men to result from a progressive immunization of mothers to H-Y antigen. Since *non*homosexual cross-gendered individuals do not show this birth order effect, it might be more indicative of sexual orientation than of cross-gender identity.

In a meta-analysis of 13 studies, Blanchard (1997) found a significantly higher sibling sex ratio than normal only in a combined feminine/transsexual homosexual sample (N = 896). Since the sibling sex ratio in homosexual (N = 2.365) and heterosexual (N = 5.308) samples was not significantly different from normal, the sibling sex ratio findings might be associated with cross-gender identification.

Conclusions of theories on cross-gender development

Though mainly indirect, increasing evidence has been found for the idea that the brains of certain types of cross-gendered individuals (MFs that are sexually attracted to men in particular) were exposed to atypical levels of sex hormones during prenatal development. However, it is very unlikely that a cross-gender identity comes into existence by such exposure alone.

It is likely that biological factors, other than organizational hormonal effects, also contribute to cross-gender development. For men, the progressive immunization of mothers to H-Y antigens has been proposed, although direct evidence for this mechanism has not yet been found.

Some support was found for environmental factors, in particular parental influences, contributing to evolvement of GID in children. Although they might explain mild forms of gender disturbance, environmental factors are not likely to be sufficient or even necessary for the development of other conditions.

Diagnosis

Gender identity disorders in children and adolescents are different from those seen in adults. Phenomenologically, there is a qualitative difference between the way children and adolescents present their sex and gender predicaments. Additionally, in children a rapid and dramatic developmental process (physical, psychological and sexual) is involved. Gender identity disorders in childhood are not equivalent to those in adulthood and the former do not inevitably lead to the latter (Meyer et al., 2001). Considering the fact that this thesis pertains to SR applications in adolescence and adulthood, we will restrict to describing diagnosis and treatment criteria for adolescents and adults. More information about assessment and treatment of children with GID can be found in the Standards of Care of the HBIGDA (Meyer et al., 2001).

Presently, it is impossible to diagnose transsexualism on the basis of objective criteria. One is dependent on the - subjective - information provided by the applicants to arrive at the diagnosis. Some applicants will, unconsciously or purposely, present their histories or gender development in a distorted manner, to reach their goals of SR. Because of the subjective character of the available information and the importance of the decision to be made, the diagnostic procedure is extensive (Cohen-Kettenis and Gooren, 1999). The decision to refer someone for SR surgery is approached by the recommended procedure in the HBIGDA's Standards of Care in two phases (Meyer et al., 2001).

The first (diagnostic) phase

During the first phase, aside from differentiating between transsexualism and less extreme forms of GID, several other areas of functioning, such as psychological problems and social support, as well as potential risk factors for serious problems during or after treatment, are assessed. Naturally, differential diagnoses are also addressed in this phase, the most occurring ones being: SR applicants who are simply confused regarding aspects of their

gender (e.g., young male homosexuals who mistake their homosexuality for a GID); transvestic fetishists (heterosexual men who are sexually aroused while cross-dressing); ego-dystonic homosexuals; persons with transient stress-related cross-dressing; patients suffering from severe psychiatric conditions (e.g., schizophrenia), accompanied by delusions of belonging to the opposite sex; or persons who prefer to be sexless, but have no cross-gender identity, such as in Scoptic Syndrome patients (Coleman and Cesnik, 1990).

When DSM-IV GID criteria are not completely met, the classification Gender Identity Disorder Not Otherwise Specified is used. Some individuals with a GID, in the media often referred to as transgenderists, do not seek complete SR. Instead, they consider themselves to be male and female. They desire to incorporate and express this identity with their bodily characteristics by means of partial medical treatment, either hormones or some form of surgery. Requests for such treatment are still to be treated with great caution by professionals. No formal diagnostic or treatment protocols comparable to the HBIGDA's Standards of Care exist for these applicants, but they are needed (Cohen-Kettenis and Gooren, 1999).

Adolescents applying for SR follow through an essentially similar first diagnostic procedure as adults. In view of the rapidly changing developmental process of adolescence however, additional criteria need to be met in order to be eligible for treatment (see chapter two and three of this volume; see Meyer et al., 2001).

The second phase

The act of fully adopting a new or evolving gender role or gender presentation in everyday life is known as the Real-life Experience (RLE). The goal of the RLE is to allow the applicant to test his or her own capacity to function in the preferred gender and the strength of the wish for complete SR (including surgery), in the face of unexpected consequences while living in the opposite gender role. The RLE is largely supported with hormonal interventions (see below).

In the second phase the applicant is required to live permanently in the role of the desired sex. Significant persons need to be informed about the impending changes and a new first name has to be chosen. The Standards of Care (Meyer et al., 2001) describe six parameters to assess the quality of a person's RLE: "1) To maintain full or part-time employment; 2) To function as a student; 3) To function in community-based volunteer activity; 4) To undertake some combination of items 1-3; 5) To acquire a (legal) gender-identity-appropriate first name; 6) To provide documentation that persons other than the therapist know that the patient functions in the desired gender role". Treatment centers vary though, in their policy on eligibility for hormone treatment. Some require a period of successful cross-gender living without hormone treatment, in addition to a diagnosis of transsexualism, whereas others prescribe hormones as soon as cross-gender living has started. Some clinicians also require a minimum amount of psychotherapy sessions, but the value of obligatory psychotherapy is questionable. In most SR applicants the motivation for engaging in psychotherapy is very low. For some because they expect that all their problems will disappear after obtaining SR. Others do not confide in the therapist because they, sometimes correctly, expect to be denied SR, when they are open about their problems.

The rationale for additional requirements (i.e., RLE) for hormone treatment is that the decision to change one's gender role is accompanied with such profound personal and social consequences, that applicants should have had ample opportunity to become aware of what the familial, vocational, interpersonal, educational, economic, and legal consequences are likely to be. Professionals have a responsibility to discuss these predictable consequences with their patients (Meyer et al., 2001). Further, patients should take time to explore any doubts regarding SR or unresolved personal issues before embarking on irreversible treatment interventions.

During the RLE, regular contact with a knowledgeable psychologist or psychiatrist is required. Change of gender role can be a factor in employment discrimination, divorce, marital problems, and the restriction or loss of visitation rights with children. These issues and other impacts of the social transformation are the primary focus of these sessions. After all, this transformation stage invariably is a turbulent one (Cohen-Kettenis and Gooren, 1999; Meyer et al., 2001).

Treatment

Psychological interventions

Psychotherapy can provide education about a range of options that were not seriously considered by the patient before help was found. Particularly patients with non-transsexual gender problems or who are merely confused about their gender identity might benefit

from several forms of psychological interventions. Such interventions may help persons to better understand and cope with gender issues, and to try out alternative solutions to their problem. Examples of such solutions are part-time cross-gender living (in the desired role, yet, exclusively in supportive surroundings) or identifying stressors that urge persons to cross-dress and learn to deal with them in more effective ways. Group therapy has been recommended for individuals who want to explore their options for coping with gender dysphoria (Althof and Keller, 1980; Stermac, 1990). Marital or family therapy can help to solve conflicts between partners or family members that resulted from one individual's gender issues. Pharmacotherapy combined with psychotherapy can sometimes be successful, when the medication makes patients more amenable to psychotherapy (Coleman and Cesnik, 1990). Persons suffering from severe psychiatric conditions may require inpatient treatment in psychiatric hospitals. Unfortunately, the efficacy of all these interventions has not been investigated in formal studies (Cohen-Kettenis and Gooren, 1999).

The Standards of Care (Meyer et al., 2001) do not consider psychotherapy to be an absolute requirement for all patients before they proceed with hormone therapy. On the other hand, it may be an option for SR candidates, when they perceive the need for it themselves. They may, for instance, want to overcome anxieties concerning the future or need support when "coming-out", when dealing with personal loss, or when trying to adjust to their changing life situation (Cohen-Kettenis and Gooren, 1999).

Hormonal interventions

The social role change during the RLE usually is largely supported with hormonal therapy to enhance successful living in the new gender. Hormones improve the quality of life and limit psychiatric co-morbidity, which often accompanies lack of treatment (Leavitt et al., 1980). Before the initial administration of hormones, medical examination is performed to exclude physical conditions, like chromosomal or hormonal anomalies, and to prevent complications as a consequence of hormone treatment.

In MFs, suppression of the original sex characteristics can be partially obtained by the administration of progesterone or testosterone-blocking agents. As a result of this part of the hormone treatment bodily hair growth diminishes drastically, as do penile erections and sexual desire. Because facial hair growth is very resistant to anti-androgen therapy, additional electric hair removal techniques are necessary for successful demasculinization.

In general, speech therapy is needed, since the vocal cords will not shorten by anti-androgenic treatment, to coach the MF to learn to use his voice in a female fashion. Surgical techniques to shorten the vocal cords must still be considered experimental.

To induce female sex characteristics, estrogens are used. From this part of hormone treatment, MFs can realistically expect breast growth, some redistribution of body fat that will bring about a more female appearing body shape, and softening of skin (for additional desired and medical side effects, see Meyer et al., 2001).

In FMs androgens are used for the (irreversible) induction of masculine characteristics, such as a deepening of the voice, increased facial and body hear, clitoral enlargement, and a more masculine body shape. Reversible changes include increased upper body strength, weight gain, increased sexual interest and arousal, and decreased hip fat.

In the Netherlands, when adolescent transsexuals of 16-18 years meet the additional criteria for treatment eligibility as described in chapter two and three (this volume), hormonal treatment in a limited form is an option. For boys, anti-androgens are used to block the development of the biological sex characteristics without yet the induction of cross-sex characteristics (such as breasts in boys). This treatment for girls involves the administration of lynestrenol, inhibiting menstruation. Only after these adolescents evidently benefit from this treatment, cross-sex hormones are considered. These include hormones to feminize or masculinize the body, such as estrogens for MFs and androgens for FMs. Parents are always to be involved in the treatment of their children and are required to give their formal informed approval before commencement of any of the SR treatment phases (Cohen-Kettenis and Gooren, 1999; Meyer et al., 2001). Transsexuals, treated early at the Amsterdam gender clinic, were found to pass very easily as members of the opposite gender (Cohen-Kettenis and van Goozen, 1997).

Surgical interventions

When the RLE has resulted in a satisfactory social role change the applicant is eligible for surgery. After removal of the gonads (testicles or ovaries) reproduction becomes impossible, which is required for a legal change of the birth certificate. In MFs vaginoplasty and, in cases of unresponsiveness of breast tissue to estrogen therapy, breast enlargement are performed. Facial bone reduction to feminize the jaw line is also an option. In FMs breast removal is usually the first surgery performed for success in the

social role as a man. For some patients it is the only surgery undertaken. Others prefer removal of the uterus and ovaries as well. As phalloplasty is still in an experimental phase, some FMs rather have a neoscrotum with a testical prosthesis with or without a metaidoioplasty, transforming the hypertrophic clitoris into a microphallus (Hage and Mulder, 1995).

Aims of the thesis regarding transsexualism and sex reassignment

The research described in this dissertation pertains to SR performed in adolescent and adult transsexuals. In 1991 (Kuiper), results of a retrospective follow-up study clearly indicated the therapeutic effect of SR for the most extreme end of the spectrum of GID, known as transsexualism. Still, much less was known about which assessment criteria could predict the course and outcomes of treatment, despite implicit indications of potential risk factors in the literature. Prospective studies were needed to provide more explicit and conclusive findings regarding these issues. Furthermore, in view of the invasiveness and irreversibility of SR, prospective research was also required to demonstrate whether postoperative functioning of transsexuals indeed improves as a consequence of treatment.

In the present prospective follow-up study we investigated the outcomes of SR in different subgroups of treated transsexuals, on the one hand, and predictors of the course and outcomes of treatment, on the other. The effectiveness of SR was studied in adolescent and adult samples, and in a sample distinguishing between subtypes of transsexuals. Differences in outcomes between MFs and FMs were examined in the adult samples. Early hormone treatment with adolescent transsexuals must still be considered to be in an experimental stage. Therefore, we also examined whether the often-assumed psychological deterioration resulting from SR could be found in adolescents, when assessed in an unstructured situation. Research on predictors of the course of treatment focused on three decisive phases of the SR procedure. The first involved predictors of eligibility for starting hormone treatment, the second concerned identification of predictors of potential drop-outs of hormone treatment, and the third was directed at predictors of the duration of hormone treatment before surgery. Finally, we examined which factors could predict postoperative functioning and treatment satisfaction.

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