11 years. The female to male ratio for migraine prevalence increases from menarche until approximately age 42, where it reaches its peak, 3.3:1. Migraine occurs during the reproductive years in 27% of women between 20 to 49 years of age. The predominance of this disorder and its social, functional, and economic consequences make migraine an important matter in particular in women's health. The hormonal milieu has a substantial effect on migraine in women. An understanding of these hormonal influences in the various stages of life in females is essential to the management and migraine prevention. Race and geographic region contribute to variation in migraine prevalence but the difference between genders is almost the same. A population-based study in the United States compares the prevalence of migraine among Caucasians, African-Americans, and Asian-Americans. After adjusting for socio-demographic covariates, prevalence of migraine was lowest in Asian-Americans (women 9.2%, men 4.8%), intermediate in African-Americans (women 16.2%, men 7.2%), and highest in Caucasians (women 20.4%, men 8.6%). These results mirror the meta-analytic finding that prevalence is lowest in Asia and Africa, with considerably higher prevalence in Europe, Central and South America, and North America. Migraine prevalence decreases with advancing age in the general population and the difference between genders decreases too. In particular, women with natural menopause often show improvement in their migraines; therefore, it decreases, perhaps owing the gradual onset of ovarian failure and the declining provocative influence of hormonal cycling, but also due to non specific beneficial effects of aging on migraine.

Special gender issues in psychiatry

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Abstract: Significant gender differences exist in the course, manifestation and treatment of mental illness. Regardless of specific diagnosis age is one of the key factors in gender differences. Such differences between the sexes exist not only concerning origin and perpetuation of specific psychiatric diseases, they are also available and notable in specific fields of pharmacological and psychotherapeutically treatment. That review should sensitize clinicians for their responsibility to provide individualized, optimally effective, gender-specific care to patients suffering from mental diseases in some special topics. It should be a short overview considering some important gender details illustrated in concern with the epidemiological background, the symptoms and general used psychiatric treatment strategies of some frequent psychiatric diagnoses.

Introduction: It is well known, that significant gender differences exist in the course, manifestation and treatment of mental illness. Regardless of specific diagnosis age is one of the key factors in gender differences. In child mental health services patients are preponderantly male (1). Around time of puberty that fact changes and after adolescence, virtually most major psychiatric disorders – except substance abuse, schizophrenia, and impulse control disorders – become substantially more prevalent in females than in males (2). That turning point in female to male ratio in psychiatric violability is caused by an active growth and/or pruning of neurons during that stage of life.

However, genes alone do not explain the sex differences in vulnerability to illness. Genetic disposition elicits individual environment and experience modulates gene expression.

Gender specific hormonal effects profoundly influence the neuronal development and after all the final steady state that is achieved individually. Male as well as female hormone concentration rises sharply during puberty. Gonadal steroid receptors are expressed in areas of the cerebral cortex that mediate cognition and affect (3).

Stressful life events have been postulated as a fact to vulnerable individuals for processing psychiatric diseases. Women, in general, act as caretakers and pay more than men "the price of caring" in all areas of life (4,5). In women, the monthly fluctuation in gonadal hormone levels account for a reduced effectively protection against the potentially harmful effects of stress axis hormones (6). After suffering traumata, women are twice as likely as men to develop a posttraumatic stress syndrome. Additionally the anatomically women's strong interhemispheric brain connections may facilitate the generalization of past stressors and the invocation of traumatic memories more easily than the less well connected hemispheres in men's brains (7).

Such differences as do exist between the sexes concerning origin and perpetuation of specific psychiatric diseases are also available and notable in specific fields of pharmacological treatment. The side effect profile in male and female as well as the efficacy of "standard" treatment medication often differs. The same dose of medication applied to women works less well than for men (8).

Thus, the optimal dose range of a therapeutic medication may not be the same for women and for men. Bodies of women contain more adipose tissue than that of men per unit of body weight, which is fundamentally linked to psychotherapeutic drug response. Antipsychotics, antidepressants and anxiolytics are all lyophilise drugs and therefore on the one hand they will be retained longer in female bodies after treatment discontinuation and on the other hand they can also be released unexpectedly from fat stores during rapid weight loss and in the following causing untoward side effects.

Blood flow to the brain is another remarkable factor in gender-specific psychopharmacological treatment. It is, to a large extent, under hormonal control and in females it shows a higher speed with speed varies during the menstrual cycle (9). Therefore in females psychotropic agents reach their brain targets faster.

Nevertheless, also the activity of liver enzymes, that catabolise drugs and turn them into other molecules before they can be eliminated, depends on gender. One also must be aware of complications induced by induction of enzymes generated by an agent that may enhance or reduce the activity of another one. Women with psychiatric problems are receiving several medications than men because they more often suffer from concomitant illnesses. By the way they may also be taking contraceptives or hormone replacement therapies. Thus, drug interactions are more frequently encountered in women and, correspondingly, so are adverse reactions (9).

By the way females and males cope with side effects in a very different way. For example drugs that induce weight gain are especially problematic in women as well as drugs that cause hypotension with a potentially accident risk in elderly women at high risk of osteoporosis.

That review should sensitize clinicians for their responsibility to provide individualized, optimally effective, gender-specific care to patients suffering from mental diseases in some special topics. It should be a short overview considering some important gender details illustrated in concern with epidemiological background, symptoms and general used psychiatric treatment strategies of some frequent psychiatric diagnoses.

Gender specific psychiatric epidemiology

Child and adolescent psychiatric disorders

The prevalence of one or more psychiatric disorders in childhood and adolescence increases with age. Roberts et al 1998 describes mean prevalence of 10.2% for preschool children, 13.2% for preadolescents and 16, 5% for adolescents.

Boys more often feature so-called externalising disorders such as conduct disorder. They show hyper arousal –motor activity, impulsivity and hypervigilance – a syndrome mediated through noradrenalin (NA) at the locus coeruleus, the hypothalamic pituitary axis and the adrenal glands.

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In contrast girl appears preferentially to show dissociative response, characterised by avoidance and depression, which is also brain stem-mediated by NA via the hypothalamic-pituitary axis. By adolescents the adult pattern of psychiatric disorders is emerging, raising speculation of puberty and social changing or both as causal

Adult psychiatric disorders

In adults, virtually all major psychiatric disorders become more prevalent in females than in man with exception substance abuse, schizophrenia and impulse control disorders.

Schizophrenia

A recent meta-analysis of the literature from the past two decades reported that the incidence risk ratio for men relative to women is between 1.31 and 1.42 (10).

Rates of new-onset schizophrenia reach a peak between ages 15 and 24 years in men, and for women, the peak occurs between ages 20 and 29 years. 15% of the female schizophrenic patients do not develop the illness until their mid- or late 40 years on the opposite for male patient's onset of the illness after the age of 40 years is rare. At least in the first 15 years after onset women show a more favourable premorbid history and outcome (9).

Relatives of women suffering from schizophrenia are more likely to develop the illness compared with relatives of men with schizophrenia (11).

Concerning symptomatology females tend to experience more affective and positive symptoms and fewer negative than males. Additionally, women who present initially with the illness after 45 years of age typically suffer fewer negative symptoms than age-matched women with early-onset schizophrenia (12).

Female patients are also less likely to have structural brain abnormalities such as increased ventricle size and decreased hippocampal volume (13).

Depression

In literature a female-to-male ratio of 1.68: 1 for major depression , with a life time prevalence of major depressive disorders of 21.3% in women and 12.7% in men (14).

Women appear to be more likely to become depressed in response to interpersonal difficulties within their close family networks, and men appear more likely to become depressed in response to occupational difficulties (15).

For dysthymia the prevalence is twice as high in women, with lifetime rates of 5.4% for women and 2.6% for men (16).

The rate of depression in women is higher for atypical depression and for seasonal affective disorder (SAD) (17). As a prior history of an anxiety disorder increases the risk of developing major depression and dysthymia the female preponderance for those illnesses might be determined primarily by the gender difference in the prevalence of anxiety disorders (18).

Bipolar Disorder

Bipolar disorder occurs equally frequently in males and females. However, there are significant gender differences in its course and manifestation.

Depressive and dysphoric manic episodes are more frequent in women than in men suffering from that disorder, whereas the number of manic episodes is higher in male patients (19). Female patients with bipolar disorder are approximately two times as likely as male patients to experience rapid cycling. The number of cycles is equal in both sexes.

Concerning comorbidity, the relative risk of alcohol and substance use disorder is significant higher in females with bipolar disorder (20).

Seasonal affective disorder

Women have a six time higher risk to develop a seasonal affective disorder (SAD).

However, SAD may occur in children, it tends to arise around puberty, worsen through adolescence, and become severe around the third decade of life.

For premenopausal women with SAD, symptoms typically include subjective dysphoria, hypersomnia, severe fatigue, increased appetite and carbohydrate graving (21).

Anxiety disorders

Anxiety disorders, all in all, are more prevalent in women than in men with a higher risk to experience comorbid depression (22).

Whereas Panic with agoraphobia and generalized anxiety disorder (GAD) are two or three times more common in females than in men, social phobia is three to four times as common in women than in men. The rates of generalized anxiety disorder are equal in both sexes between the ages of 24 and 34 years, but with an increase in females over 34 years of age compared to age matched males. The prevalence of GAD in young people (15–24 years of age) is 1,5% (male) vs. 2.5% (female) and after 45 years of age we see an increase to 3.6% (male) vs. 10,3% (female) (23,24).

Although both sexes appear to have an equal prevalence of OCD, more obsessions related to foot and weight with a high comorbidity of anorexia are described in female patients in comparison to male patients.

Alcohol and substance abuse

The prevalence rate of alcoholism in men has been estimated at more than twice that in women, but the prevalence rate in women is raising and in young women it appears even to be higher.

When drinking an equal amount of alcohol per unit of body weight, females become more intoxicated compared to males. Thus, although heavy drinking is defined to consist of more than four drinks a day in men – in women as little as one and one-half drinks a day may constitute heavy drinking.

The alcohol-related medical complicationes develop more quickly in women with higher relative mortality rates (25).

The rates of hallucinogen and opiat abuse are also higher in the male population, however, the abuse of cocain and amphetamines seems equal in both sexes. Concerning consume habbits women are less likely to inject cocain they prefer to smoke or sniff it.

Gender specific treatment aspects of mental illnesses

Schizophrenia

Some, but not all studies suggest that, compared with men, women show a better response to psychopharmacological treatment before menopause (9).

Teaching women with schizophrenia about methods for birth control and strategies for avoiding unwanted sexual assault is one of the most important aspects of treatment. Schizophrenic patients are at increased risk for still-birth, preterm delivery and low-birth-weight babies. Additionally their newborns are at increased risk cardiovascular congenital anomalies as well as for sudden infant death syndrome (26).

Depression

Whether there are gender –based differences in response rates for different antidepressants is a subject of controversy till now (12).

In providing psychopharmacological treatment to women of reproductive age, it is important to keep in mind the possibility of pregnancy. For women who are planning to conceive and continued use of medication during pregnancy is necessary, choosing an antidepressant that is safe during pregnancy may prevent the need to switch medication after conception.

Females are also at increased risk for depression during approximately the first 4–8 weeks after delivery, and that increased risk is particularly true for women with history of a depression. Therefore a prophylaxis with an antidepressant drug, begun 1–2 days after delivery, may decrease the likelihood of an episode of postpartum-onset major depressio (27).

Bipolar Disorder

Gender specific differences in presentation, clinical course, physiology, concomitant medications, and reproductive phase of life are all factors that should be considered when choosing treatment options for bipolar disorder in women (28).

For women whose mood consistently deteriorates premenstrual, it is helpful to measure blood levels of medication both premenstrual

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https://doi.org/10.1017/S0924270800032695 Published online by Cambridge University Press

and in the week post menses, as serum levels of mood stabilizers may fluctuate across the menstrual cycle (29).

Alcohol and substance abuse

Societal stigmatisation, fear loosing custody of their children and because a woman's drinking or drug use pattern is greatly influenced by that of her partner, it is essential to treat women in a non – judgmental and supportive manner.

Gender and suicide

Rates of suicide in general, are higher in males than in females with an increase in males, particularly, in the younger age group (30). In contrast suicide rates in women have remained stable with even a decrease in the older population.

Social factors, linked to changes in gender roles seem the most likely explanation.

Rates of deliberate self-harm (DSH) are usually higher in females compared to males but in women that behaviour is more often based on non-suicidal motivation than in men. Men tend to use violent means of both suicide and DSH more often than females do (31).

Treatment compliance of male patients seems poorer than that of female patients. Gender differences in verbal abilities and the reluctance of many males to share emotional problems may make some of the usual talking therapies less attractive to some males. Treatment programmes that have more of a practical emphasis, perhaps focused on problem – solving, could prove more successful in engaging males at risk.

Gender-specific suicide mortality in medical doctors

The estimated relative risk of male doctors vs. general population varies from 1.1 to 3.4 and that of female doctors 2.5 to 5.7. When compared to other academics the relative suicide mortality varied 1.5 to 3.8 in males and 3.7 to 4.5 in females (32).

Gender issues in psychotherapy

Gender as a concept encompasses culturally determined cognitions, attitudes, and belief systems about females and males. It varies across cultures, changes through historical time and differs in terms of who makes the observations and judgements (33). Therefore, gender influences the patient's choice of caregiver, the convenience between caregiver and patient and the sequence and content of the clinical material presented. Mostly it also affects the diagnosis, treatment selection, length of treatment and even the outcome (34).

Gender Identity and Gender Role

Gender identity the internalized sense of maleness or femaleness and the knowledge of one's biological sex with all the psychological attributes. Its development depends on many influences such as identification with parents and their attitudes, expectations and behaviours as well as cultural factors (35). However, gender roles show enormous differences in dependence of existing societies. In all cultures the mother remains as the primary caregiver during early childhood, therefore she becomes the primary identification figure for both boys and girls at that time of lifespan.

As girls grow up, that same sex-identification must not shift. On the contrary boys to consolidate their masculine identity have to change and develop identification with the male figure. That complex factor of separating from early attachments to establish a male identity may be responsible for the higher incidence of gender identity disorders in male (36).

The self- concept and identity in adolescence shows differences in individual definition between the sexes. Males generally define themselves in terms of individual achievement and work and females more often in relational term (37).

Gilligan also found that in mid- adolescence girls show in relationships a conflict between selfish solution and solutions that are selfless involving self-sacrifice. At that time females are about twice as likely as males to have a depressive episode.

Gender and choice of therapist

Some patients make gender priority in choosing a therapist, as well as some therapists make gender-based recommendations for clients regarding the choice of a therapist. That is mainly the case in victims of sexual abuse or other sexual troubles and adolescents because at that life stage sexual issues are so pressing, embarrassing and intrusive and gender conflicts can interfere with therapeutic progress. However, misunderstandings caused by a different gender-oriented therapist can be avoided that way.

Therapeutic Process

Gender belongs to a number of factors that can establish a basis of an insufficient attention to transference issues. Out of that discussion of particular material might be encouraged or inhibited. Transference can occur at any phase of the treatment interaction, in any treatment modality and can be seen at any patient (38). In couples, group and family therapy transference issues are extra multiple and more complex and during course of treatment attention must be paid to that fact regardless of whether the therapist is male or female.

Because gender affects trust and even compliance, in other modes of treatment, as well as in psychotherapy change in therapist based on gender might be helpful in some situations.

Psychotherapy treatments and outcome

The specific literature shows that gender has not been well studied in that case till now.

There is empirical evidence on both sides of the efficacy argument for a gender effect in treatment, with most studies concluding that there is none (39).

Acknowledgments

References:

1. Gardner W, Pajer KA, Kelleher KJ, Scholle SH, & Wassermann RC. Child sex differences in primary care clinicians' mental health care of children and adolescents. Archives of Pediatrics & Adolescent Medicine 2002;**156**:454–459.
2. Seeman MV. Gender issues in Psychiatry. Focus.psychiatryonline.org; winter 2006; IV, No.1.
3. Martin R, Guerra B, Alonso R, Ramirez CM, & Diaz M. Estrogen activates classical and alternative mechanism to orchestrate neuroprotection. Current Neurovascular Research 2005;**22**:287–301.
4. Schuster TL, Kessler RC, Aseltine RH, Jr: Supportive interactions, and depressed mood. Am J Community Psychol 1990;**18**:423–438.
5. Williams K. Has the future of marriage arrived? A contemporary examination of gender, marriage, and psychological well-beeing. Journal of Health and Social Behaviour 2003;**44**:470–487.
6. De Bellis MD, Keshavan MS, Beers SR, Hall J, Frustaci K, Masalehdan A, Noll J, & Boring AM: Sex differences in brain maturation during childhood and adolescence. Cerebral Cortex 2001;**11**:552–557.
7. Piefke M, & Fink GR. Recollections of one's own past: The effects of aging and gender on the neural mechanism of episodic autobiographical memory. Anat Embryol (Berl) 2005;**20**:1–16.
8. Fankhauser MP: Psychiatric disorders in women: psychopharmacologic treatments. Journal of the American Pharmaceutical Association 1997;**6**:667–678.
9. Seeman MV. Gender differences in the prescribing of antipsychotic drugs. American Journal of Psychiatry 2004;**161**: 1324–1333.
10. Aleman A, Kahn RS, SeltenJP: Sex differences in the risk of schizophrenia: evidence from meta-analysis. Arch Gen Psychiatry 2003;**60**:565–571.
11. Castle DJ,Murray RM: The neurodevelopmental basis of sex differences in schizophrenia. Psychol Med 1991;**21**:565–575.
12. Burt VK, Hendrick VC: Gender issues in the treatment of mental illness, chapter 9 in Clinical Manual of Women's Mental Health. Washington, DC, American Psychiatric publishing, 2005, pp 147–180.

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https://doi.org/10.1017/S0924270800032695 Published online by Cambridge University Press

13. Cowell PE, Kostianovsky DJ, Gur RC, et al: Sex differences in neuroanatomical and clinical correlations in schizophrenia. Am J Psychiatry 1996;**153**:799–805.
14. Kessler RC, McGonagle KA, Zhao S, Nelson CB, Hughes M, Eshleman S, Wittchen HU, & Kendler KS. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: results from the National Comorbidity survey. Archives of General Psychiatry 1994;**51**:8–19.
15. Kendler KS, Thornton LM, & Prescott CA. Gender differences in the rates of exposure to stressful life events and sensitivity to their depressogenic effects. American Journal of Psychiatry 2001;**158**:587–593.
16. Kessler RC, McGonagle KA, Swartz M, et al: Sex and depression in the National Comorbidity Survey.I: lifetime prevalence, chronicity and recurrence. J Affect Disord 1993;**29**:85–96.
17. Rosenthal NE, Sack DA, Gillin JC; Lewy AJ, Goodwin FK, Davenport Y, Mueller PS, Newsome DA, & Wehr TA. Seasonal affective disorder: a description of the syndrome and preliminary findings with light therapy. Archives of General Psychiatry 1984;**41**:72–80.
18. Parker G, & Hadzi-Pavlovic D. Is any female preponderance in depression secondary to a primary female preponderance in anxiety disorder? Acta Psychiatrica Scandinavica 2001;**103**:252–256.
19. Leibenluft E. Women with bipolar illness: clinical and research issues. American Journal of Psychiatry 1996;**153**:63–173.
20. Frye MA, Altshuler LL, Mc Elroy SL, Suppes T, Keck PE, Denicoff K, Nolen WA, Kupka R, Leverich GS, Pollio C, Grunze H, Walden J, & Post RM. Gender differences in prevalence risk, and clinical correlates of alcoholism comorbidity in bipolar disorder. American Journal of Psychiatry 2003;**160**:883–889.
21. Levitan RD, Kaplan AS, Brown GM, Vaccarino FJ, Kennedy SH, Levitt AJ, Joffe RT. Hormonal and subjective response to intravenous im-chlorophenylpiperazine in women with seasonal affective disorders. Archives of General Psychiatry 1998;**55**:244–249.
22. Pigott TA. Anxiety disorders in women. The Psychiatric Clinics of North American 2003;**26**:621–672.
23. Halbreich U. Anxiety disorders in women: a developmental and life-cycle perspective. Depression and Anxiety 2003;**17**:107–110.
24. Burt VK, Rasgon N: Special considerations in treating bipolar disorder in women. *Bipolar* disord 2004;**6**:2–13.
25. Greenfield SF, Manwani SG, & Nargiso JE. Epidemiology of substance use disorders in women. Obstetrics and Gynecological Clinics of North America 2003;**30**:413–446.
26. Jablensky AV, Morgan V, Zubrick SR, et al: Pregnancy, delivery, and neonatal complications in a population cohort of women with schizophrenia and major affective disorder. Am J psychiatry 2005;**162**:79–91.
27. Wisner KL & Wheeler SB. Prevention of recurrent major postpartum major depression. Hospital & Community Psychiatry 1994;**45**:1191–1196.
28. Burt VK, & Rasgon N. Special considerations in treating bipolar disorder in women. Bipolar Disorder 2004;**6**:2–13.
29. Tondo L & Baldessarini RJ. Rapid cycling in women and men with bipolar manic –depressive disorder. American Journal of Psychiatry 1998;**155**:1434–1436.
30. Cantor CH. Suicide in the western world. In International Handbook of Suicide and Attempt Suicide (K. Hawton and K. Van Heeringen, Eds). Chichester: John Wiley & Sons, 2000, pp. 9–28.
31. Hawton K. Sex and suicide. British Journal of Psychiatry 2000;**177**:484–485.
32. Lindemann S, Läärä E, Hakko H, & Lönnquist J. A systematic review on gender –specific suicide mortality in medical doctors. British Journal of Psychiatry 1996;**168**:274–279.
33. Worell J & Remer P. Feminist perspectives in therapy: An empowerment model for women. New York, Willey & Sons, 1992.
34. Nadelson CC, Notmann MT and McCarthy MK: Gender issues in Psychotherapy, Oxford University Press. 2005
35. Hines M & Green R. Human hormonal and neural correlates of sex typed behaviours. In Review of Psychiatry. Washington, DC: American Psychiatric Press Inc. 1991, pp 536–555.
36. American Psychiatric Association. Diagnostic and Mental Disorder, 3rd Edition (revised). Washington, DC: American Psychiatric Association, 1987.
37. Gilligan C. Adolescent development reconsidered. In New directions for child development: Adolescent social behaviour and health (C. Irwin, Ed.). San Francisco: Jossey-Bass 1987, pp 63–92.
38. Horner A. The role of the female therapist in the affirmation of gender in male patients Journal of the American Academy of Psychoanalysis 1992;**20**:599–610.
39. Huppert JD, Bufka LF, Barlow DH, Gorman JM, Shear MK, & Woods SW. Therapists, therapist variables, and cognitive-behavioural therapy outcome in a multicenter trial for panic disorder. Journal of Consulting and Clinical Psychology 2001;**69**:747–755.

Gender differences in epilepsy

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Epilepsy is disorder of the central nervous system resulting in unprovoked seizures that happen more than once. Epilepsy affects children and adults, men and women, and persons of all races, religions, ethnic background and social classes. Individuals in certain populations are at higher risk. Epidemiological studies of epilepsy indicate that the overall incidence of epilepsy is slightly higher in male than in female subjects. For individual seizure types various sex ratios have been reported (1–5).

In two population based studies, gender differences in idiopathic generalized epilepsy were identified. In the outpatient study these differences were due to juvenile absence epilepsy and juvenile myoclonic epilepsy. It seems that women more frequently than man have idiopathic generalized epilepsy. The reason behind this difference is not established, but it is likely that sex hormones may play a role in the development of idiopathic generalized epilepsy. If this assumption is true, the gender difference would be more pronounced before menopause, and indeed, the female preponderance in idiopathic generalized epilepsy was highest for the age group 15–50 years and decline with age (6–8).

Symptomatic, localization reacted epilepsy was more frequent among men than among women, and this may reflect differences of structural damage of the brain and subsequent seizures. The gender difference was greatest in the age group 30–59 years (the age group with a high risk of traumatic brain injury), men also may be more vulnerable to seizure associated brain damage. It seems that nonsymptomatic epilepsy (both idopathic and criptogenic generalized) more often occurs in women in contrast to symptomatic location-related epilepsy which has preponderance in men (9).

Most studies in the literature find a female preponderance in psychogenic non-epileptic seizures (PNES) with the proportion of women of 75%. Men were significantly older than women at both attack onset and presentation at the NES clinic. In most pediatric series there is no sex imbalance. High rates of concomitant

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