Pharmacological Treatment of Paraphilias

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ABSTRACT
Background: The psychiatrist’s main role is to provide care to the paraphilic patient and to reduce personal distress. However, in cases of paraphilia associated with sexual offences, reducing paraphilic behavior is critical in an approach to preventing sexual violence and reducing victimization. This review will focus on this specific population.

Method: We discuss the recently published recommendations for the treatment of paraphilias of the World Federation of Societies of Biological Psychiatry which were based on a review of the available literature about pharmacological treatment of paraphilias (1970-2010).

Results and Conclusion: Antiandrogens, and mostly GnRH analogues, significantly reduce the intensity and frequency of deviant sexual arousal and behavior, although informed consent is necessary in all cases. GnRH analogue treatment constitutes the most promising treatment for sex offenders at high risk of sexual violence, such as pedophiles or serial rapists. SSRIs remain an interesting option in adolescents, in patients with depressive or OCD disorders, or in mild paraphilias such as exhibitionism. Pharmacological interventions should be part of a more comprehensive treatment plan including psychotherapy and, in most cases, behavior therapy.

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Treatment of paraphilias began during the late nineteenth century at a similar time, though not directly connected, to the new concept of sexual deviance as a medical condition. Etiology of paraphilias remains unclear despite years of research. Numerous psychological, developmental, environmental, genetic, and organic factors have been discussed, but none of the theories fully explains paraphilic behaviors. The causes are probably multifactorial, rendering treatment difficult. Recidivism of sex offences is a major concern in the treatment of paraphilias such as pedophilia. Most people recognize that incarceration alone will not solve sexual violence. Indeed, treating the sexual offenders with a diagnosis of paraphilia is critical in an approach to preventing sexual violence and reducing victimization. This paper was intended to present and summarize pharmacological treatment of paraphilias and will focus on paraphilias associated with a risk of sexual offending such as pedophilia or exhibitionism.
of aggression rather than a specific paraphilia. However, a small number of rapists may meet the criteria for having a paraphilia (e.g., exhibitionism or pedophilia, sexual sadism). Simply having paraphilia is not illegal, but acting in response to certain paraphilic urges may be illegal and, in some cases, subjects the person with paraphilia to severe sanctions. Conversely, not all sex offenders meet the criteria for a paraphilic disorder.

Some paraphilic subjects show evidence of comorbid major axis I mental illness which may require specific treatment, in most cases: affective disorders (3-95%), substance use disorders (8-85%), anxiety disorders (3-64%) and less often: schizophrenia or other psychotic disorders (1-16%) (1-4), dementia or other cognitive disorders (for review, 2). Attention deficit and hyperactivity disorders (ADHD) may also represent 36% of cases and eating disorders 10% of cases. Paraphilia may also be secondary to major axis I mental disorders (e.g., schizophrenia or manic episodes), in these cases, antipsychotic treatment and/or mood stabilizers are used as first line treatment. In cases of comorbid depressive or anxiety disorders, antidepressant treatment may be used as first line treatment or in combination with antiandrogen treatment if necessary.

Paraphilias may also occur within the context of axis II disorders, the prevalence of personality disorders may vary from 33 to 52% (among them antisocial personality disorder is the most frequently observed) (3-5). Heterogeneity of both the samples and the diagnosis criteria may have contributed to the discrepancies observed in terms of prevalence between the studies. These personality disorders may be addressed with psychological therapies such as behavioral or cognitive treatments.

**HISTORY OF TREATMENTS**

Surgical castration was first used in 1892 in Switzerland. By the 1940s, some attempts had been made to treat paraphilias using oestrogens, but due to feminizing side-effects, this was supplanted in the 1960s by medications reducing testosterone levels (cyproterone acetate [CPA] is available in most countries, while in the U.S., medroxyprogesterone acetate [MPA] is the drug of choice). Unlike surgical castration, the effects of antilibido medication are reversible on discontinuation. A more recent and promising development in the treatment of paraphilias at high risk of sexual offending is the use of gonadotrophin hormone releasing hormone (GnRH) agonists. These compounds reduce testosterone to very low levels and result in very low levels of recidivism. There is also emerging evidence for the use of selective serotonin reuptake inhibitors (SSRIs). A pharmacological approach is essential in the treatment of patients with severe paraphilias, but a psychotherapeutic context to the treatment is equally necessary (especially cognitive behavioral therapy).

**ETHICAL CONSIDERATIONS**

Treatment for paraphilia should reduce or eliminate paraphilic fantasies and behaviors and decrease the level of distress of paraphilic subjects, permitting them to live a normal sexual life, it should not have significant side-effects and, most importantly, it should prevent the risk of acting out and victimization in case of pedophilia or exhibitionism, for example. The optimal treatment for paraphilias is currently unavailable and treatments already used decrease, in an unspecific manner, sexual arousal level and behavior. In the case of hormonal treatment, deviant but also non-deviant (if any) sexual behavior and fantasies are largely decreased in most subjects. An explanation of the sexual side effects associated with hormonal treatment and obtaining informed consent of the patient are considered by many authors a necessary prerequisite (2).

Paraphilic sex offenders referred for hormonal treatment are often the object of some external coercion, be it from a court decision or under the pressure of their family, employers or other involved persons. From an ethical point of view, the patient may be subjected to hormonal treatment only if all of the following conditions are met:

- The person has a paraphilic disorder diagnosed by a psychiatrist after a careful psychiatric examination.
- The person’s condition represents a significant risk of serious harm to his health or to the physical or moral integrity of other persons.
- No less intrusive treatment means of providing care are available.
- The psychiatrist in charge of the patient agrees to inform the patient and receive his or her consent, to take the responsibility for the indication of the treatment and for the follow up including somatic aspects with the help of a consultant endocrinologist, if necessary.

In some cases, coerced treatment may be used in sex
offenders with paraphilia. The decision to subject a sex offender to coerced treatment should be taken by a court or another competent body. The court or other competent body should:

- Act in accordance with procedures provided by law based on the principle that the person concerned should be seen and consulted;
- Not specify the content of the treatment (hormonal or not) but force the person to comply with the treatment plan negotiated with the psychiatrist;
- The decision to subject this person to hormonal treatment must be taken by a psychiatrist with the requisite competence and experience and not by the judge, after examination of the person concerned and only after his or her informed consent has been obtained. While treatment may facilitate improvement and release or discharge, this may not be necessarily the case;
- In some cases, failure of the offender to accept any kind of treatment could lead to sanctions by the court.

The Belgian Advisory Committee on Bioethics has published some guidelines in this field in 2006 (www.health.fgov.be/bioeth).

**METHODOLOGICAL LIMITATIONS**

Most reports on the treatment of paraphilias are case reports or series. In general, controlled treatment efficacy studies in this field are extremely difficult to conduct for several reasons: those who suffer from paraphilia rarely seek treatment voluntarily; ethical considerations would not easily allow performing double-blind placebo-controlled studies in paraphilic subjects at risk of sex offending (such as pedophilic subjects or exhibitionists).

Methodological biases were observed in many studies. The small size of the samples and the short duration of follow up make statistical analyses in most of the studies difficult. The outcome measurements usually used, such as self reports of conventional and paraphilic sexual activity, are subjective and not always reliable. Penile plethysmography (using audio or visual erotic stimuli videos including children, rapes or adults) may be used but, according to Marshall and Fernandez (6), many methodological flaws may limit the use of this technique. In contrast, Howes (7) reported that plethysmography may be used to assess the risk of violence in incarcerated sex offenders. The comparison between studies is often difficult due to methodological differences between studies such as: heterogeneity of paraphilias included; different durations of follow up; different definitions of recidivism (sexual or non sexual offences); the presence or absence of previous offences and/or previous convictions which (if any) may increase the recidivism risk; the retrospective or prospective design of the study; outpatients or prisoners may be included which may interfere with treatment compliance and with the recidivism risk; and finally, in most cases, statistical analyses are not conducted due to small sample sizes and cross over designs.

This review, based on the published recommendations for the treatment of paraphilias of the World Federation of Societies of Biological Psychiatry (2), focused on pharmacological treatment of male adult paraphilic subjects at risk for sexual offending. Female sex offenders and female paraphilic subjects were excluded from this review.

**PHARMACOLOGICAL TREATMENT**

Paraphilia is not a synonym for sex offender. Conversely, not all sex offenders suffer from a paraphilia. Paraphilic patients may only suffer from deviant sexual fantasies or urges and their deviant sexual behavior does not necessarily involve a non-consenting person or a child. In these latter cases, treatment may open a possibility for prevention of acting out and victimization, thus reducing individual and social burden of this disease. We will focus the review on these latter cases.

The primary aims of the treatment are:

- To control paraphilic fantasies and behaviors (this will help to decrease the risk of sexual offences especially in cases of pedophilia or rape);
- To decrease the level of distress of the paraphilic subject.

In addition to psychological and behavioral therapies, several pharmacological treatment options are available. The treatment choice will essentially depend on:

- The patient’s previous medical history,
- The patient’s compliance,
- The intensity of paraphilic sexual fantasies and the risk of sexual violence.

In case of psychiatric comorbidities, pharmacological
and/or psychological treatment of these comorbidities must be used. Hormonal treatment may be coprescribed in case of lack of efficacy of adequate treatment of the psychiatric disease on deviant sexual behavior, in order to control paraphilic behavior. However, antiandrogen treatment may increase psychotic symptoms (8).

The evaluation of a subject with paraphilia must include demographic characteristics (including being in contact with children in case of pedophilia), information about deviant and non-deviant sexual behavior and fantasies (type, frequency of sexual activity and fantasies, presence or absence of sexual violence fantasies), past and current psychiatric history, history of previous sexual and non-sexual offences, past history of sexual or physical abuse, history of previous treatment of paraphilic behavior if any. The diagnosis of paraphilia includes: the number and type of paraphilias; comorbidity with axis 1 or axis 2 of the DSM classification (especially addictive disorders or personality disorders), if any; comorbidity with somatic diseases if any. Impulsivity and hypersexuality are also important to assess.

Some risk factors such as: comorbid psychiatric disorders, personality disorders, alcohol or substance abuse, type of paraphilia (pedophilia with sexual interest in boys), young age of onset of paraphilia, past history of sexual or physical abuse, previous history of sexual offences may increase the risk of recidivism. Some of these risk factors may be addressed during psychotherapy. Some scales, like Static-99, Rapid Risk Assessment for Sexual Offence Recidivism, Sex Offender Risk Appraisal Guide (SORAG), Sexual Violence Risk–20 and, more recently, Stable 2000 (using dynamic items) have been proposed to evaluate these risks (9-12). In meta-analyses all these instruments have shown a good predictive validity, supporting the utility and predictive validity of actuarial risk assessment complementary to treatment efforts to reduce risk (13). Static risk assessment tools that use historical or unchangeable risk variables (Static 99 or SORAG) are expected to be less accurate than dynamic tools in measuring risk changes despite their overall strong predictive validity (14).

Antiandrogens or GnRH analogues, if necessary, have to be prescribed by a physician after appropriate medical assessment and informed consent is required.

Meta-analyses and reviews concerning the efficacy of cognitive behavioral therapy for sex offenders with paraphilia indicate a modest reduction in recidivism (15), but this is doubted by studies with longer follow-up periods (16, 17). However, the other approaches (insight-oriented treatment, therapeutic communities, other psychosocial programs) do not seem to reduce recidivism (18). Moreover, the longer the observation periods, the higher the recidivism rates, leaving the impression that the durability of psychological therapies is limited. Randomized controlled trials are needed.

No randomized controlled trials have documented the efficacy of psychotropic medications such as antidepressants, antipsychotics or mood stabilizers, in paraphilic behaviors. Concerning the use of antipsychotics and mood stabilizers, there are only anecdotal reports (for review see 2). In general their use is only recommended in case of psychiatric comorbidities treatment.

One double-blind non-controlled study comparing clomipramine and desipramine was conducted in a sample of 15 patients with different types of paraphilias. Only 8 patients completed the study and both medications equally reduced the paraphilic symptoms (19). The efficacy of SSRIs and clomipramine side effects have limited the use of clomipramine in the treatment of paraphilic disorders.

**SSRIS**

The rationale for their use in these indications is based on their sexual side effects (inhibitory) and on the similarities between OCD and some paraphilic behaviors. Despite the increasing clinical use of SSRIs for paraphilias and hypersexuality (for review see 20), double-blind controlled trials with these agents are still lacking.

Most of the available data are case reports and open or retrospective studies and a systematic review concerning the use of SSRIs in paraphilic subjects found only nine case series for analysis (21). The efficacy of SSRIs in the reduction of fantasies and paraphilic behaviors has previously been described for the treatment of pedophilia, exhibitionism, paraphilias in general, voyeurism and fetishism (for a review see 2). In general their use is only recommended in case of psychiatric comorbidities treatment. Concerning the use of antipsychotics and mood stabilizers, there are only anecdotal reports (for review see 2). In general their use is only recommended in case of psychiatric comorbidities treatment.
reducing paraphilic sexual fantasies and behavior in these patients. Lack or insufficient therapeutic response to fluoxetine was described in one retrospective study concerning patients with paraphilias (22) and a case report concerning a patient with exhibitionism and one with sexual sadism (23).

Kafka and Prentky (24) used fluoxetine (30 mg/d-12 weeks) in ten patients with paraphilias and ten patients with hypersexual disorder and obtained a significant reduction in unconventional sexual behavior. Another trial obtained 70% remission of paraphilias (n=13) and paraphilia related disorders (n=11) after a two-stage treatment program of sertraline followed by fluoxetine (25). Fedoroff et al. (26) obtained almost 95% remission of symptoms in a treatment combining fluoxetine and psychotherapy versus psychotherapy alone (n=51). One trial noted a reduction in the total sexual outlet and the time spent in paraphilic behaviors with a combination of fluoxetine and methylphenidate (n=26) (27).

A 12-week open label dose titrated study of sertraline for the treatment of pedophilia (n=20) obtained reductions in sexual drive, sexual fantasies, and other sexual behaviors. These authors reported a reduction of sexual arousal patterns with suppression of deviant arousal, coupled with a maintenance or relative increase in non-pedophilic arousal in consenting sex with adults (28). A retrospective study concerning 25 patients treated with sertraline for pedophilia or other paraphilias found a significant decrease in paraphilic fantasies (29). Another study described 50% remission of paraphilic symptoms in an open label study using 100 mg of sertraline during a mean follow up of 17 weeks (27).

Efficacy of fluvoxamine has been described for the treatment of 16 patients with pedophilia (29). Escitalopram was also useful for the treatment of one patient with transvestic fetishism (30).

Paraphilias usually start at adolescence and are limited to deviant fantasies related to masturbation between 12 and 18 years. SSRIs given at this stage could help to prevent acting out of deviant behaviors (31).

Taking into account clinical data, Bradford and Fedoroff (31) and Kafka (25), recommended SSRIs prescription in mild paraphilias especially in cases of exhibitionism, in juvenile subjects with paraphilia, or in cases that have comorbidity with OCD and/or depression. Though not formally approved, their off label use has become a standard of care.

However, controlled studies demonstrating efficacy are needed.

**ANTIANDROGEN TREATMENT**

Steroidal antiandrogens such as medroxyprogesterone acetate (MPA) or cyproterone acetate (CPA) have progestogenetic activities in addition to their effects as antiandrogens, resulting in a decrease in circulating levels of both testosterone and dihydrotestosterone (DHT). These compounds interfere with the binding of DHT to androgen receptors and they have been shown to block the cellular uptake of androgens.

**MPA**

Many paraphilic subjects received MPA treatment, although most studies were not controlled, and some biases were observed (32). Among the thirteen studies reported in Thibaut et al’s review (2), three were double blind cross over studies (comparing MPA and placebo) including 51 pedophiles and 8 sex offenders (33-35), nine were open studies and one was a retrospective study (275 sex offenders) (36). Reduction of sexual behavior and complete disappearance of deviant sexual behavior and fantasies were observed after one to two months in the majority of cases, in spite of maintained erectile function during plethysmography in some studies. In twelve cases, recidivism of deviant sexual behavior during MPA treatment was reported using different criteria. Some studies reported increased recidivism after MPA was stopped.

The re-offence rate for 334 individuals taking depot MPA was greater than with CPA, with a mean rate of 27% at the end of the follow-up (range 6 months to 13 years) as compared with 50% before treatment (37).

Money et al. (38), using MPA, reported no reduction in non-sexual crimes in sex offenders with antisocial behavior. McConaghy et al. (39) reported a lower efficacy of MPA in juveniles.

Severe side effects (pulmonary embolism, weight gain, diabetes mellitus, transient increased levels of hepatic enzymes, increased blood pressure, depressive disorders, Cushing syndrome or adrenal suppression, etc.) were observed with MPA. The benefit/risk ratio did not favor the use of MPA which was abandoned in Europe.

**CPA**

Many subjects received CPA treatment but only a few studies were controlled, and some biases were observed. Among the ten studies aimed to evaluate CPA treatment, two were double blind cross-over comparative studies (CPA vs ethinyl estradiol or MPA, 40, 41); two were double blind cross-over studies comparing CPA with placebo (42, 43); one was a single blind study, CPA
vs placebo (44); and five were open studies. In these comparative studies, CPA, ethinyl-estradiol and MPA showed similar efficacy and CPA was superior to placebo.

CPA (50 – 300 mg/day per os or i.m. 300 – 600 mg every 1 or 2 weeks) was associated with a significant decrease of self-reported sexual fantasies or activity and a disappearance of deviant sexual behavior in about 80 – 90% of cases within 4-12 weeks. The efficacy was maintained as long as the treatment was used and in some cases for up to 8 years.

Several studies examined the re-offence rates of individuals taking CPA. A mean rate of 6% was found at the end of the follow-up period (less than the rate observed with MPA), as compared with 85% before treatment, with a duration of follow up ranging from 2 months to 4.5 years. Many re-offences were committed by individuals who did not comply with therapy (37).

Plasma testosterone levels were moderately decreased and could not be used as a marker of compliance.

In addition, CPA has antiaggressive and anxiolytic properties that may be of interest in these populations.

CPA has shown positive but inconsistent results in the treatment of paraphilic subjects. In some countries, the oral form is the only form available and treatment compliance may be erratic. Because of a substantial number of side effects (in addition to those related to hypoandrogenism), including gynecomastia (20%, which is not always completely reversible), weight gain, depressive mood, thrombo-embolic phenomena and hepatocellular damage (severe cases < 1%), there was a need for other effective treatments with fewer side effects.

**GNRH ANALOGUES**

Gonadotrophin-releasing hormone (GnRH) analogues act initially at the level of the pituitary to stimulate LH release, resulting in a transient increase in serum testosterone levels (flare-up). After an initial stimulation, GnRH analogues cause rapid desensitization of GnRH receptors, resulting in reduction of LH and testosterone to castrate levels within 2 to 4 weeks. Two analogues of the gonadotrophin-releasing hormone were preferentially used in paraphilic subjects: triptorelin and leuprorelin. They were developed as 1- or 3-month formulations.

**Triptorelin**

Two open prospective studies and one retrospective study using triptorelin 1-month formulation were performed in sex offenders or paraphilic subjects (45-47).

In total, 75 male subjects (aged from 15 to 57 years) with paraphilia were included in two prospective open studies (n=41), two retrospective studies (n=30 + 3) and one case report. These subjects were receiving depot triptorelin for some months to 7 years (3.75 mg/month). During triptorelin treatment, no deviant sexual behavior was observed and no sexual offences were committed except in one case (45). One third of cases (13/41 cases) had previously received CPA without efficacy. No plethysmography was used. However, in all cases but one, triptorelin was successful and the deviant sexual behavior completely disappeared during GnRH analogue treatment.

In Czerny et al.’s study (48), similar efficacies were observed with CPA and triptorelin.

**Leuprorelin**

Three open studies using leuprorelin (1- or 3-month formulations) were performed in patients with paraphilic behaviors (48-53).

Forty-five male subjects (20 to 61 years old) with paraphilias received leuprolide acetate; they were included in three prospective studies including a cross-over study (52) (28 cases), one naturalistic study comparing CPA and GNRH analogues (48) (58 cases, 11 with leuprorelin acetate) and 15 case reports. Maximal duration of follow up was 57 months (mean duration about 1 year).

In addition to the outcome measures used, such as self-report of deviant and non-deviant sexual behavior and fantasies (type, frequency, intensity) or testosterone and LH levels, plethysmography was used in Schober et al.’s study (53). However, in one case report (54) the patient relapsed while treated with leuprorelin treatment and committed a sex offence.

In conclusion, there were no controlled studies, and some biases were observed. The efficacy observed in these open studies, though, was clear. In most cases, subjects were previously treated with psychotherapy or other antiandrogens such as CPA without efficacy. In most of the cases, CPA or flutamide were concurrently used for the first weeks of GnRH agonist in order to prevent the behavioral consequences of a flare-up effect and concurrent psychotherapy was used. Concomitantly to the rapid decrease of testosterone levels, a reduction of non-deviant sexual behavior was observed and deviant sexual fantasies disappeared with a maximal effect after 1 or 3 months in more than 90% of cases.

The duration of treatment and the conditions of treatment interruption remain controversial. For some patients, a life-long treatment may be necessary.
Among the side effects observed with GnRHa, bone mineral loss is the most problematic side effect and needs to be carefully checked at least every two years and even more frequently in case of osteoporosis. Calcium and vitamin D or bisphosphonates may be prescribed in the event of osteoporosis (for a review of these side effects see 2, 32). Decreased values of vertebral and femoral bone densities (0.95 and 0.8 g/cm³, respectively), without clinical signs but requiring medical supervision, were recorded during the third year of triptorelin treatment in one patient aged 27, among 6 cases in Thibaut et al.’s study (45) (normal ranges: 1.15 ± 0.15 and 0.9 ± 0.1 g/cm³, respectively). In Rösler and Witztum study (47) two patients among 30 cases had progressive demineralization and were given oral calcium and vitamin D supplements after completing 24 months of triptorelin therapy. Hoogeveen and Van der Veer (55) reported bone demineralization in one patient aged 35 years after 37 months of triptorelin treatment in spite of bisphosphonates and calcium treatment. Krueger and Kaplan (51) observed three cases of demineralization at 35 and 57 months respectively among 12 patients aged from 20 to 48, receiving leuprolide acetate. Czerny et al. (48) reported one case of bone mineral loss among 29 patients receiving GnRH analogues for a mean duration of 10 months. Dickey (56) observed demineralization after three years of leuprolide acetate treatment in a 28-year-old patient. Calcium and vitamin D were used. Grasswick and Bradford (57) focused their study on bone mineral survey and reported demineralization in 2/4 cases with CPA, 1/1 with leuprorelin and 2/2 with surgical castration, the follow-up duration was four years. Patients may also complain of hot flushes, asthenia, nausea, weight gain (2–13%), transient pain or site reaction at the site of injection, decreased facial and body hair growth, blood pressure variations, decreased glucose tolerance, decreased testicular volume (4–20%), episodic painful ejaculation, diffuse muscular tenderness, sweating, depressive symptoms and finally mild gynecomastia (2-7%) (for review of their frequency of occurrence see 32, 48).

When properly administered, with an appropriate protocol in place to detect and treat side effects should they develop, GnRHa treatments constitute no more or less of a risk than most other forms of frequently prescribed pharmacological agents (58).

An algorithm which distinguishes six levels of treatment for different categories of paraphilias according to the severity of the paraphilia and the risk of sexual violence was proposed (2) . Medical survey (including osteodensitometry at least every two years) is necessary during hormonal treatment (for detailed information, 2).

Until now, there have been no pharmacological studies conducted in sexual murderers, and in women, only few case reports have been described.

Hormonal agents cannot be easily used in the treatment of juvenile sex offenders with paraphilia owing to possible interference with the development of puberty. In these subjects, behavioral therapy and SSRIs are the first choice treatment (for review, 59).

**DURATION OF TREATMENT**

Paraphilia is a chronic disorder. According to the majority of authors, a minimal duration of treatment of three to five years for severe paraphilia with a high risk of sexual violence is necessary. Hormonal treatment must not be stopped abruptly. In case of mild paraphilia, a treatment of at least two years might be used, after which the patient must be carefully followed up following treatment stopping. Treatment must be resumed in case of recurrence of paraphilic sexual fantasies.

**CONCLUSION**

In paraphilic subjects, pharmacological interventions should be part of a more comprehensive treatment plan including psychotherapy and, in most cases, behavior therapy (20, 60). In paraphilic subjects at high risk of victimization, pharmacological treatment should even be used as first line treatment. Not every sex offender with paraphilia is a candidate for hormonal treatment, even if it has the benefit of being reversible once discontinued. For paraphilias, characterized by intense and frequent deviant sexual desire and arousal, which highly predispose the patient to severe paraphilic behavior (such as pedophilia or serial rapes), a hormonal intervention may be needed. Antiandrogens or GnRH analogues have to be prescribed by a physician, after appropriate medical assessment, and informed consent must be obtained. GnRH analogues reduce testosterone levels, more dramatically and more consistently, and produced less variable results in the treatment of paraphilic behaviors than MPA or CPA. GnRH analogue treatment probably constitutes the most promising treatment for sex offenders at high risk of sexual violence, such as pedophiles or serial rapists.

In contrast, SSRIs remains an interesting option in patients with depressive or OCD disorders, in mild
paraphilias such as exhibitionism or in juvenile paraphilic subjects.

Collaborative studies including large cohorts of well-defined paraphilic subjects with long durations of follow up are clearly needed.

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