Psychological therapies as described by Marshall are but one means of reducing the rapist's and child molester's sexual aggressive urges and behaviors. Various organic therapies have been recommended, including psychosurgery and surgical castration. Spodak, Falck, and Rappeport review a newer and more reversible form of castration, chemical castration by the use of the female hormone medroxyprogesterone acetate and the new antiandrogen, cyproterone acetate. These drugs are used to decrease the functioning level of the male hormone, testosterone. Reduction of testosterone appears to decrease overall sexual drive and rather rapidly allows the rapist or child molester to gain greater control (in some cases complete control) of his aggressive sexual urges.

Spodak, Falck, and Rappeport describe the use of these hormonal agents, their effects and side effects, and give therapists some guidelines to follow when using these chemical interventions. Although not seen as a panacea, these agents do appear rapidly to assist the deviant in gaining control of his urges, and when coupled with psychotherapy they serve a valuable adjunct to the therapist armamentarium.

THE HORMONAL TREATMENT OF PARAPHILIACS WITH DEPO-PROVERA

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Medroxyprogesterone acetate (MPA; Depo-provera, Upjohn) is a synthetic steroid-like progesterone which inhibits testosterone biosynthesis and is effective in lowering plasma testosterone levels (Sloan & Coffey, 1975). There has been extensive

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experience in the use of MPA in women for secondary amenorrhea, functional uterine bleeding, and contraception. It has generally been found to be safe. The use of MPA in men, however, is still considered experimental in this country. Table 1 shows a review of some articles which have reported the use of antiandrogen in this country and Europe. Laschet et al. (1967) reported on 25 cases using a daily oral dose of 100-200 mg of CPA; he found that male sexuality was inhibited within 10-14 days, and that the antiandrogenic effect was reversible in 10-14 days after the drug administration was stopped. Money (1970; Money et al., 1976) reported the use of MPA in 1970 and 1976 in which he studied 8 patients over three years and 23 patients over eight years, respectively. Both reports noted that sexuality was inhibited, that there was a decrease of the testosterone level to the female range, and that the effects were reversible with no permanent side effects. The 1976 report also noted a reduction in the frequency of erotic imagery, the frequency of erection, and the frequency of actual erotic practice from 50% to 100%.

Mothes et al. (1972) reported on 352 patients studied over seven years who received another antiandrogen, cyproterone acetate (CPA; Androcur). This drug has been studied in Europe but is not available in this country. At an oral dose of 100 mg of CPA per day, they noted a reduction in the strength of sexual drive. Weight gain was noted and gynecomastia was found in 20% of the patients. There was an inhibition of spermatogenesis which was reversible.

Laschet (1975) reported on 250 patients studied over seven years who received an oral dose of 100 mg of CPA per day. Sexual drive was inhibited by the end of the third week. Side effects of lethargy and depression were noted, but found reversible. Blumer and Migeon (1975) reported on 22 patients

TABLE 1
The Effects of Hormonal Treatment on Paraphiliacs

YEAR	AUTHOR	DRUG	# OF CASES	DOSE	DURATION OF FOLLOW UP	RESULTS
1967	LASCHET et. al.	CPA	25	100-200 mg/wk	?	SEXUALITY INHIBITED IN 10-14 DAYS; EFFECTS REVERSIBLE IN 10-14 DAYS
1970	MONEY	MPA	8	300-400 mg/wk	3 yr.	SEXUALITY INHIBITED WITHIN 1 MONTH; DECREASE IN TESTOSTERONE LEVEL TO FEMALE RANGE; EFFECTS REVERSIBLE WITH NO PERMANENT SIDE EFFECTS
1972	MOTHES et al.	CPA	352	100 mg/day	7 yr.	REDUCTION IN STRENGTH OF SEXUAL INSTINCT; SIDE EFFECTS: WGT GAIN & GYNECOMASTIA (20%); INHIBITION OF SPERMATOGENESIS WAS REVERSIBLE
1975	LASCHET	CPA	250	100 mg/day	7 yr.	SEXUALITY INHIBITED BY END OF THIRD WEEK; EFFECTS REVERSIBLE; CHANGE IN DIRECTION OF SEX DRIVE OBSERVED; SIDE EFFECTS: LETHARGY, DEPRESSION DID NOT WORK FOR SEX RELATED AGGRESSION
1975	BLUMER et al.	MPA	22	100-300 mg/wk	1 yr.	SUPPRESSION OF SEXUAL AROUSAL ACHIEVED; PTS WITH EPISODIC VIOLENCE IMPROVED AFTER 4-8 WEEKS OF TREATMENT; DECREASE IN AGGRESSIVENESS IN TEMPORAL LOBE EPILEPTICS
1976	MONEY et al.	MPA	23	200-400 mg/wk	8 yr.	PLASMA TESTOSTERONE LEVEL LOWERED; REDUCTION IN FREQUENCY OF EROTIC IMAGERY; REDUCTION IN FREQUENCY OF ERECTIONS; REDUCTION IN FREQUENCY OF ACTUAL EROTIC PRACTICE FROM 50-100%; EFFECTS WERE REVERSIBLE; SOME IMPROVEMENT IN AGGRESSIVENESS

studied over one year who received an IM dose of 100-300 mg of MPA weekly. Sexual arousal was suppressed. It was also reported that temporal lobe epileptics who were tried on MPA showed some decrease in aggressiveness.

While no clear indications have yet been established for the use of MPA, it is generally used for those who repeatedly display socially unacceptable sexual behavior, have not been helped with previous psychotherapy or incarceration, and are in danger of facing long prison sentences.

In summary (Table 2), antiandrogen in males was found to lower the plasma testosterone level, decrease the sexual drive (usually the intensity, but not the direction), decrease the ability to have an erection, decrease the volume of ejaculate, and inhibit spermatogenesis. A decrease in sexual fantasies and dreams has also been reported. Overall success with the medication was reported but not well defined. As shown in Table 2, Mothes reported a 65% to 85% success with CPA, Laschet reported 100% with CPA, and Money reported 50% to 100% with MPA.

In almost all cases it was noted that the effects were reversible; only Money (1970) reported that some patients underwent a sufficiently dramatic improvement, such that they could be weaned from the treatment in a matter of months without the return of deviant sexual behavior.

The side effects (Table 2) which were commonly encountered were weight gain, fatigability, and increased sleep requirement. In addition, a mood disturbance such as restlessness, nervousness, inability to concentrate, or depression has been reported. Temporary gynecomastia appeared in some cases with the use of CPA, but in no cases with the use of MPA. Loss of body hair was reported, as well as hot and cold flashes, but these were generally rare. No study reported any irreversible side effects.

Table 3 describes six patients who were treated with MPA at our clinic. Our protocol consisted of starting each patient with an IM dose of 400 mg MPA per week. Each patient reported weekly on the frequency of his paraphiliac behavior and the medication was titrated to achieve a goal of abstinence from paraphiliac behavior. In no case did we exceed 500 mg of Depo-

TABLE 2
Effects and Side Effects of Hormonal Treatment

EFFECTS OF HORMONAL TREATMENT

- LOWERED PLASMA TESTOSTERONE
- DECREASED SEX DRIVE-EFFECTS INTENSITY BUT NOT DIRECTION
- DECREASED ABILITY TO HAVE AN ERECTION
- DECREASED ABILITY TO EJACULATE
- DECREASED VOLUME OF EJACULATE
- INHIBITION OF SPERMATOGENESIS
- DECREASE IN SEXUAL FANTASIES AND DREAMS
- OVERALL SUCCESS WITH MEDICATION:
  - A) 65-85% (MOTHES, 1972)
  - B) 100 % (LASCHET, 1975)
  - C) 50-100% (MONEY, 1976)

SIDE EFFECTS OF HORMONAL TREATMENT

- WEIGHT GAIN
- TEMPORARY GYNECOMASTIA - WITH CPA BUT NOT MPA (20%)
- EASY FATIGABILITY
- INCREASED SLEEP REQUIREMENT
- MOOD DISTURBANCE - RESTLESSNESS
  - NERVOUSNESS
  - INABILITY TO CONCENTRATE
  - DEPRESSIVE MOOD
- DECREASE IN BODY HAIR (10%)
- HOT AND COLD FLASHES

TABLE 3
Treatment Results with Medroxyprogesterone Acetate

PT	DIAGNOSIS	PREVIOUS THERAPY	PREVIOUS ARREST AND CONVICTION	LEGAL STATUS	PARAPHILIAC BEHAVIOR/WK PRE-TREAT.	PARAPHILIAC BEHAVIOR/WK DURING TREAT.	DISPOSITION
1	HOM PED	YES	YES	PROBATION	2-3	0-1	ARRESTED
2	HOM PED	YES	YES	NONE	3	0	ACTIVE PT
3	SADO-MAS	NO	NO	NONE	5	0	ACTIVE PT
4	HOM PED	YES	YES	PROBATION	2	0-1	ARRESTED
5	HET PED	NO	NO	NONE	1	0	ACTIVE PT
6	EXHIB	YES	YES	NONE	30	30	DROPPED OUT

provera per week. The mean value for plasma testosterone from our laboratory was 575±150 ng/100 ml for normal adult males. The level for normal adult females was 49±13 ng/100 ml. In all cases the plasma testosterone level was lowered during treatment to a range of 12-140 ng/100 ml.

Patient 1 was a 27 year old homosexual pedophile who molested young boys in school bathrooms by frottage. He had had previous psychotherapy and had been convicted but never incarcerated. He came to us on probation and his paraphiliac behavior went from a frequency of 2-3 times per week to 0-1 times per week during treatment. He was recently rearrested and is presently incarcerated, waiting trial on a charge of child molestation.

Patient 2 was a 29 year old homosexual pedophile who would drive to a strange city, find a group of boys standing around and drive up to them, punch one from his car window and then drive away and masturbate. He had had previous psychotherapy and had been incarcerated for molesting a 12 year old boy, but he came for treatment with no current legal difficulties. His frequency of paraphiliac behavior went from 3 per week to 0 per week during treatment. He is still actively in treatment, and he reports no recurrence of his paraphiliac behavior since he began Depo-provera.

Patient 3 was a 42 year old sadist who was involved in a 20-year sadomasochistic relationship with his wife, which included beating her, shaving her head, and tying her in chains. He had no previous therapy or any legal difficulties. His paraphiliac behavior went from 5 times per week to 0 times per week during treatment. He is still actively in treatment and reports that he is able to have conventional heterosexual relations with his wife up to twice per week, and the urge to participate in the sadomasochistic behavior is absent.

Patient 4 was a 52 year old homosexual pedophile who was involved with a 15 year old adolescent male when he came for treatment. He was on probation from the Patuxent Institution in Maryland, where he had been confined for evaluation for an indeterminant sentence. Individual and group psychotherapy

had been unsuccessful. The frequency of his paraphiliac behavior went from 2 per week to 0-1 per week during treatment. However, he still reported the ability to have homosexual relations with adult males. He was recently arrested for soliciting a 14 year old boy.

Patient 5 was a 42 year old heterosexual pedophile who was a teacher in one of the local high schools and was sexually involved with some of his adolescent female students. On Depo-provera his paraphiliac behavior ceased and he reported the ability to have conventional heterosexual relations with his wife.

Patient 6 was a 38 year old exhibitionist who had not changed his behavior in spite of previous therapy and legal convictions; he had never been incarcerated. He reported no change in his paraphiliac behavior during treatment and terminated therapy on his own.

Table 3 shows a favorable outcome in 50% of the treatment cases (Patients 2, 3, and 5). Patients 3, 4, and 5 reported the ability to continue adult sexual relations while on the medication.

The following detailed case study of a patient who has been on Depo-provera for the past five years was not reported in Table 3, since his treatment started prior to the beginning of our study.

Mr. K is a 41 year old, grossly obese, homosexual pedophile, who had received five years of psychoanalytic psychotherapeutic treatment prior to starting hormonal therapy. He had felt driven to participate in his homosexual pedophiliac behavior up to five times per day. When he was not molesting young boys, he masturbated to diminish the urge. He had been arrested numerous times, but had never been incarcerated. In 1973, Mr. K began hormonal treatment at Johns Hopkins Hospital, and his urge to molest young boys was suppressed on a dose-related basis.

The family history is significant in that Mr. K is an only child. His mother is 62 years old, in good health, and living in Florida. The patient describes his mother as obese, overprotective, phobic, unloving, and never letting the patient have any peace. The patient's father, a chemical engineer, died in 1973 of a heart attack. The patient describes his father as a loner who was never

home. His family history is negative for drug abuse, alcoholism, epilepsy, or mental illness. The patient was raised in a middle class life style and describes all social functions as involving the immediate family and a few relatives. He feels he spent much of his childhood around adults or with relatives.

Mr. K's personal history shows that he was born and raised in New York City. He was obese at birth, weighing 12 pounds. He remembers normal developmental milestones and recalls some thumb sucking and night terrors. He describes his childhood as very unhappy. He states that his mother always wanted a girl and as a result he was dressed like one. He was always obese and a bit funny looking; he recalls many beatings by his peers because he was "quite the oddball."

Mr. K's IQ is 112, which puts him in the bright normal range. He attended college, where he received a B.S. degree in Music.

Mr. K claims that he has been involved with young boys since the age of four. His legal history dates back to 1962, when he was 18. He was arrested in New York several times for assault by "placing of hands." A fugitive warrant was issued for him when he left New York for Baltimore. After several arrests in Baltimore for "placing of hands," a court psychiatrist recommended an indeterminant sentence, but Mr. K was released on $50 bail and admitted to a private psychiatric facility in Maryland. While in long-term individual psychotherapy he claims that he gained insight into his personality structure, his handling of aggression, and his sexual orientation. Before psychotherapy, Mr. K had infrequently bathed or changed clothes, and suffered from high blood pressure for which no organic cause could be found. All three disorders were improved with psychotherapy, but he remained an active homosexual pedophile.

Between 1963 and 1969, he avoided arrest and worked very hard in his own business as a high-fidelity expert. During this time, he had a stable nonsexual friendship with a 52 year old alcoholic woman. Mr. K was again arrested for "placing of hands" on a 5 year old boy in 1969; he was placed on probation.

His revolving door pattern on pedophiliac behavior, arrests, and probation continued until he faced the possibility of having

an indeterminate sentence imposed in 1973. At this time he was referred to Dr. John Money's clinic at The Johns Hopkins Hospital, where he began receiving Depo-provera. He has continued to receive the medication regularly and has remained arrest-free.

He claims his sexual satisfaction comes exclusively from boys, aged 5-9. He attempted relations with an adult women once and an adult man once, but he vomited both times. His usual behavior is to solicit a young boy in a nonaggressive manner in order to perform fellatio.

Mr. K usually takes 300 mg of Depo-provera weekly, but this dosage needs to be increased when he visits with his mother twice a year, or when school is out of session. Mr. K describes his reaction to any decrease in his medication as "disastrous." He states that on 300 mg of medication he does not notice young boys on the street. On any lower dosage he becomes aware of young boys and begins fantasizing sexual relations with them. If he were to stop the medication, Mr. K believes he would be "back on the streets again" within two weeks. He is presently maintained on 400 mg Depo-provera weekly, maintains a successful jewelry business, and is content with the absence of an active sexual life.

In conclusion, medroxyprogesterone acetate (Depo-provera, Upjohn) is still considered experimental in men, although there have been no irreversible side effects reported. The medication lowered the plasma testosterone level in all cases, but the paraphiliac sex drive was not stopped in every case. One early report showed equivocal results in diminishing aggression, which may warrant further investigation.

Easy to monitor and supervise, Depo-provera can be given in a weekly injection and the plasma testosterone level can be followed on a monthly basis. The medication may offer help to those who have not responded to other forms of treatment and/or incarceration.

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