Leuprolide acetate is a familiar drug that may modify sex-offender behaviour: the urologist's role

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INTRODUCTION

The early history of treatment of paedophilia has paralleled the treatment of prostate cancer. Both were initially treated surgically, with orchidectomy, and then pharmacologically, with a variety of drugs to decrease testosterone levels. In the early 1940s, Charles Huggins of the University of Chicago, began studying biochemical mechanisms that led to metastasis of prostate cancer. The role of testosterone in stimulating the growth of the prostate and prostate cancer cells was quickly recognized. By castrating patients with advanced prostate cancer, he reduced serum testosterone to a 10th of its original level. Patients experienced a reduction of pain and slowing of disease progression. For this and related discoveries, Huggins was awarded the 1966 Nobel Prize for Medicine [1].

In 1929 and through the 1930s, castration and legislation for sex offences was pioneered in Denmark, then Norway, Iceland, Switzerland, and Holland. In a 20-year follow-up, recidivism rates in Europe were reported to be <5% [2]. In 1938, Judge Lawrence Neil Turrentine of San Diego, CA, USA instituted a programme that would lead to national notoriety. He began offering an option to sex offenders, i.e. voluntary castration and long probation, or a lengthy prison sentence. This option continued for many years [3].

Work on treating prostate cancer continued throughout the 1940s and 1950s. The role of the key endocrine glands (hypothalamus, pituitary and adrenal) in the growth and development of the prostate and prostate cancer were further elucidated. This opened the investigation of other types of hormone therapy for testosterone reduction. In the following 30 years, advanced prostate cancer was treated surgically by castration or pharmacologically with diethylstilbestrol (DES). In the early 1980s, researchers found that daily injections of leuprolide acetate (LA) could reduce testosterone to castrate levels and produce effects similar to 3 mg/day of DES but without the cardiovascular side-effects.

Since then, testosterone reduction has become a mainstay of treatment for this disease. The available effective drugs include LA, cyproterone acetate (CPA), and goserelin acetate. Again, treatment of paedophilia mirrored the treatment of prostate cancer. Therapeutic drugs for paedophilia now include LHRH inhibitors (LA, CPA and triptorelin); synthetic oestrogens (DES), and progesterones (medroxyprogesterone acetate). These and other drugs, including antidepressants, have been used in an attempt to curb paedophilic urges. All have shown some efficacy in reducing paedophilic behaviour.

Schober *et al.* [4] recently reported a placebo-controlled, blinded, multidisciplinary study of LA in paedophiles. The study detailed the objective effects of this familiar drug on measurable aspects of the arousal response. The study followed five adult male paedophiles from baseline through 1 year of therapy on LA injected once every 3 months, followed by 1 year on a saline-placebo injection. Results of testosterone levels and polygraph testing investigating urges and masturbatory frequency toward children were recorded every 3 months. Viewing time, which correlated 90% with self-reported sexual preferences, as well as penile tumescence in response to auditory and visual stimuli to children and adults, were also recorded. Interviews during cognitive-behavioural psychotherapy, and self-scored questionnaires, were documented.

The drug was effective in controlling paedophilic urges. During the 2-year study, none of the men re-offended. A most striking feature was that all expressed a preference for treatment over placebo and wished to continue beyond the study period. Indeed, after 2 months on placebo, two men expressed great distress that the medication was losing effectiveness and they were fearful of re-offending. Because of intrusive thoughts and sexual urges toward children, the 'blinding' was broken on these two men and LA was re-instituted. A third man resumed LA treatment after 6 months of placebo because psychological and polygraph responses indicated the possibility of re-offending.

On LA therapy, the men reported an increase in their ability to concentrate on various activities such as work, educational activities and life planning, without disruption by deviant sexual thoughts. This effect directly correlated with administration of LA, and drug discontinuation resulted in a return of obsessive thoughts.

During the study, the men were also taught, through cognitive behavioural therapy based on relapse prevention, to recognise and avoid 'red flags' that precipitated paedophilic behaviour. The authors believe that the men were better able to comprehend and incorporate behavioural changes on LA because they were not distracted by obsessive thoughts.

Interest preference, as measured by Abel Assessment and Monarch penile plethysmography, was generally unchanged throughout the study. In addition, Monarch penile plethysmography verified self-reported claims of lowered libido, in that LA therapy caused significant reductions in the magnitude of their sexual arousal pattern. LA significantly reduced paedophilic fantasies, urges, and masturbation; however, paedophilic interest did not change during a year of therapy. Only one of the five men showed a greater preference for adult partners than for children while on treatment.

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On placebo (which allowed observation of paedophilic arousal and behaviours as levels of testosterone increased gradually) physiological arousal eventually rose to baseline. Return of arousal was observed as early as 3 months after discontinuing the drug and substituting the placebo. As noted by the polygraph, at baseline and on placebo the men were generally deceptive about increased paedophilic interests and masturbatory frequency. On LA, when the men were asked about having paedophilic urges and masturbating to thoughts of children, all self-reported a decrease, which was confirmed by the polygraph.

The most common side-effects included weight gain and hot flashes, which were easily tolerated. Less frequently, breast tenderness occurred. Genital examination revealed a consistent decrease in penile circumference from a baseline of 9.7 cm to a nadir of 8 cm at 13 months of treatment. Two of the men reported complete loss of erections (ages 48 and 58 years) and three reported partial loss (ages 35, 51 and 57 years). During the 24-month course of the study, none of the men withdrew because of treatment-related adverse events or side-effects. Because these men may be younger than most men with prostate cancer, and might need to use the drug for a longer period, indeed, perhaps for life, the physician should be aware of the risk of osteopenia [4].

CHALLENGES TO UROLOGIST INVOLVEMENT

Traditionally, urologists have the most experience in using and managing the side-effects of medications such as LA as part of prostate cancer treatment. Another application of LA that the urologist may be asked to consider is in treating sexual deviance. Most urologists may be uncomfortable with using LA for treating sexual offenders because of the lack of training and expertise within this specialized area. The socially sensitive nature of the disorder and the stigma associated with it also negate active involvement in its treatment. Indeed, rarely has a condition been so stigmatized as paedophilia.

It may be questioned whether it is disease or a criminal activity. Psychiatrists recognize it as a Diagnostic and Statistical Manual of Mental Disorders IV (Text Revision) disorder. Nonetheless, paedophiles have been labelled, shunned and isolated, much like lepers of the past. It is a disorder that must be investigated to be understood and appears to be potentially treatable. Although the causes of paedophilia are still elusive, the symptoms can to some extent be managed.

For the last 20 years the treatment of paedophiles had been the sole purview of psychologists, psychiatrists, and sex therapists. High recidivism rates directed these specialists to seek pharmacological and other means to increase success in controlling paedophilic behaviour. The type of medical expertise sought was found in urological and sexual medicine. Urologists as a group have a profound understanding of the physiology and mechanics of the male sexual response. Although the urologist is indeed familiar with most aspects of sexual medicine, treatment of sex offenders has not been commonly included and most would feel a lack of competence in this area.

The concerns related to this lack of competence are justified, but can be addressed by placing the urologist in an adjunctive, rather than primary, role in relation to the patient. A urologist could oversee medical management; other issues related to sex-offender management would be assigned to sex-offender treatment clinicians and correctional officials.

The issue of philosophical/political views and social abhorrence is best addressed by an understanding of the disorder. This, like other disorders, is not a condition that a person deliberately chooses. The compulsive obsession dominates the person's life, interfering with many aspects and preventing safe, social interactions. Considering that dangerous sexual offenders currently live in and are going to be placed within our communities, effective treatment becomes a pressing necessity.

We must re-frame the problem of sexual offenders from an emotional reaction of revulsion into legal, economic and practical terms, because despite our best efforts, the legal system cannot simply lock them up for life. Often, legal issues of plea-bargaining and political issues associated with prison overcrowding result in dangerous sexual offenders being placed in the community, with devastating results. Additionally, prison systems often encounter cyclical funding problems, leading them to search for economically efficient management for sexual offenders. Each of these observations converges in suggesting that regardless of our 'get tough and lock them up' mentality, we are very likely to have dangerous sexual offenders living in our communities.

Working with sexual-offender patients would require a fundamental shift in the relationship between urologist and patient. Traditionally, the urologist is ethically obliged to practise in the best interests of the patient. However, managing sexual offenders involves the additional ethical aspect of community safety. The degree to which the urologist is involved in community safety issues can be minimized by mandating that LA treatment only occurs in the context of a qualified sex-offender treatment programme.

One facet of treating sexual offenders that is categorically different from traditional treatment is the sexual offenders' penchant for deception and distortion, particularly on issues pertaining to sexual deviance. Therefore, objective measures such as polygraph testing, penile plethysmography and viewing-time studies are commonly used when managing this population. Schober *et al.* [4] found that LA significantly reduced overall blood testosterone levels, sexual arousal, masturbatory frequency, and sexual fantasy. However, there was individual variability in treatment effect and some offenders were still able to generate clinically significant blood flow in response to their preferred deviant stimuli (children). Therefore, LA is a useful adjunct in the management of sexual offenders, but is not a cure for the problem of sexual deviance, and requires careful monitoring and a multidisciplinary approach to treatment.

As the successful treatment of paedophilic sex offenders continues to develop, some form of testosterone-lowering medication will probably become a mainstay of therapy [5]. The recognition and diagnosis of paedophilia, its negative impact on victims within the community and the economics of the control of the offender, have encouraged careful means of objective follow-up and continued treatment. The urologist, as a traditional practitioner of sexual medicine, has a realistic and vital part to play in the scheme of therapy.

To approach a better management for paedophilia, the causes must be elucidated through controlled, objective observation and study. Through this we can gather and assimilate information, leading to a better understanding of this disorder. Once paedophilia is established as a treatable disorder, the scorn and shame that drives many offenders underground will be alleviated, allowing an enlightened approach to compassionate investigation, treatment, and management by a team of medical specialists, counsellors, psychiatrists and others with an interest in this field. As physicians, our goal is to restore functionality to the patient. In this case, successful management can mean restoring the patient from a dangerous offender to a contributing member of society.

CONFLICT OF INTEREST

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Abbreviations: **DES**, diethylstilbestrol; **LA**, leuprolide acetate; **CPA**, cyproterone acetate.