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## IMPOTENCE

Impotence is simply described as the inability to achieve or maintain an erection suitable for sexual intercourse. Impotence affects 20 million American men or about 10% of the entire male population and 35% of the men over the age of 60. An erection is created when the penis fills with blood much like a tire fills with air. The blood is pumped into the penis and not allowed out, and the more blood that is pumped in, the firmer the erection. The reasons for lack of erections are either the lack of appropriate filling of the penis or inappropriate emptying. Because the nervous system controls the arteries and veins, psychological problems can cause emptying of the penis at unwanted times. At one time it was felt that psychologic causes were the most important, but we have come to realize that they are actually in a significant minority. The major causes of impotence today are diabetes, atherosclerosis or hardening of the arteries, and impotence following radical pelvic surgery. Other causes include spinal cord injuries, hormonal problems, and multiple sclerosis. The abuse of drugs, alcoholism and smoking can interfere with normal erections, and well over 200 different prescription medications can cause impotence as a side effect.

### **DIAGNOSIS**

The diagnosis of impotence can be made by any physician with an interest in the diagnosis. A complete history and physical along with some psychologic screening and an evaluation of the hormone levels are most important. Other tests may include an evaluation of erections while sleeping. We know that a healthy male might have four to five erections during a night of restful sleep. This is something that cannot be suppressed by psychologic means, and measuring these erections can be helpful in determining the nature of the cause of impotence. Other studies include evaluation of nerve function, blood flow measurement into the penis, ultrasound of the penis and x-rays of the arteries and veins of the penis. Many of these additional tests are invasive and expensive. While the results are often enlightening, they rarely change the options for treatment.

### **MEDICAL TREATMENT**

Medical treatments for impotence include counseling when a psychologic problem is discovered, working with couples and reducing tension, improving communications, and trying to obtain realistic expectations are areas where counseling can help. In some patients where psychologic causes are not the origination problem, but have become a significant factor, it may be necessary to have counseling to go through the difficult rehabilitation period.

### **HORMONE THERAPY**

Hormone treatments, namely testosterone, can be used in men whose production of male hormones is low. Testosterone injections do not really help men who do not have low levels, and these can be measured by the physician at the initial evaluation. Testosterone injections are not without their problems, however, as the use of the drug can stimulate the growth of prostate tissue. Testosterone cannot be used in patients with known or suspected prostate cancer as the cancer could grow more rapidly. Other less common side effects of testosterone use include liver injury and increased blood pressure. Men who take testosterone regularly usually stop sperm production, and permanent infertility could result if testosterone is used long enough.

### **YOHIMBINE**

Yohimbine is a medication made from the bark of a tree that grows in India and Africa. Yohimbine acts on the nervous system and may also have some effect on increasing the male libido. It is considered homeopathic by medical doctors, that is, no definite uses are proven. The drug is very safe with uncommon side effects such as mild dizziness, nervousness, headaches and nausea. Some studies have suggested 10 - 20 % of men will respond to the treatment with yohimbine, and it is necessary to take the medicine for a full two months before knowing whether it is going to work or not.

### **SELF-INJECTION THERAPY**

What is self-injection therapy? This involves the patient or his partner giving an injection of medication directly into the side of the penis to create an erection. The erection created is a natural one and usually begins 5 to 15 minutes after the injection. Not all patients respond to this type of treatment, but those that do, should develop an erection that lasts from 30 to 90 minutes. The injections are given with a tiny needle and use very small amounts of medicine. The injections are relatively painless and are easily taught to the patients in one or two visits with the doctor.

Self-injection therapy has been used since the early 1980s. Several medications are available for use, including papaverine hydrochloride, phentolamine (Regitine), and prostaglandin E1 (Prostin®). Each of these medicines achieve erections by causing increased blood flow into the penis through the tiny arteries, and also by decreasing the outflow of blood from the penile veins. All three drugs have been available for some time and are considered safe by the FDA for other uses. None of them have been approved by the FDA for specific use in erection difficulties, and therefore have to be considered experimental. However, considerable experience has been obtained by urologists over the past decade and the drugs are considered safe for self-injection therapy.

### **RISKS**

As mentioned, these medications have not been approved by the FDA and so technically need to be considered experimental. All medications have some potential risks and side effects and risks do exist with all of these drugs and the injections. These may include the possibility of bleeding or bruising from the injection, and the small chance of infection. One of the more common risks include the development of a prolonged erection or priapism (more than four hours). An episode of priapism might require a trip back to the physician or to the emergency room to receive other medications to counteract the self-injection medications and relieve the prolonged erection. Priapism happens in only a few percent of the patients. The patient does need to be aware that any erection lasting more than four hours needs to be dealt with by a physician. Another complication is the development of permanent scarring within the penis. The medications can be irritating to the penile tissues, and scarring is most often seen in patients who abuse the drug by using it too often. Scarring could create difficulty obtaining erections even with additional medication. If the scarring were severe, placement of penile prosthesis, if that other option was chosen at a later time, might be difficult. Even more rare is the development of other medical problems. Papaverine has been known to cause a change in liver function tests, which go away if the drug is stopped.

### **DISADVANTAGES OF SELF-INJECTION TREATMENT**

Self-injection treatment does require the patient or his partner to learn to give injections directly into the penis. The patient does need to return to the doctor for follow-up visits, particularly in the early phases of treatment. The patients cannot use the injections too often for fear of developing scarring and the self-injection treatment should be limited to once every four to seven days (range depends on medication type and initial response).

The injections are relatively costly and average costs depend on what combinations of medications are used. An injection may cost up to \$8 to \$10 per injection.

Not all patients are candidates for self-injection therapy. A percentage of patients will not develop good erections, and another set of patients might develop erections that do not go away, making them poor candidates for continued use of this drug.

### **ADVANTAGES**

The major advantage of self-injection therapy is the fact that the erection created is similar to the body's own spontaneous erections. The erection lasts usually 30 to 90 minutes, which is adequate duration for successful and pleasing intercourse. Self-injection therapy is less costly than surgical implantation. Self-injection therapy can be used by the patient at his own discretion and at anytime with a minimum amount of preparation. Treatment does not involve surgery and is not painful.

### **SUMMARY OF SELF-INJECTION THERAPY**

If you decide to start the self-injection program, we will have you back to the office for test doses to see which drug and dosage is most appropriate for you. After we have established the drug dose, we will then teach you how to draw medication from a vial, and also how to inject it safely into the penis. You may want to bring your partner to watch, although a partner is not absolutely necessary if you have good dexterity and eyesight. We will have you read, understand and sign a consent form. The form will mention the various risks of the medications and injections. We will go over all of these risks and conditions for you in detail at the time of the educational program. If you have any questions about self-injection therapy, please don't hesitate to ask us.

### **VACUUM DEVICES**

The vacuum erection device is a simple mechanical tool, which allows the man to develop an erection, which is suitable for sexual intercourse.

### **WHY DO VACUUM ERECTION DEVICES WORK?**

Erections are created when blood is trapped in the penis much like air is trapped in an inflated tire. The more air that is placed into the tire, the firmer the tire becomes. Likewise, the more blood trapped temporarily in the penis, the firmer the erection. The vacuum erection device works by bringing more blood into the penis and then trapping it.

### **HOW THE VACUUM ERECTION DEVICE WORKS?**

The penis is inserted into a hollow plastic tube, which is pressed against the body creating a seal. A vacuum is created in the tube by using a small hand pump. This in turn draws blood into the penis causing engorgement, enlargement and rigidity. After one to three minutes of vacuum, an adequate erection is created and a soft rubber O-ring is then placed around the base of the penis in order to trap the blood and maintain the erection. The vacuum tube is removed and sexual intercourse is then possible. The rubber O-ring will maintain the erection until removed, and in most circumstances this can be left in place for 25 to 30 minutes.

### **WHO ARE THE BEST CANDIDATES FOR VACUUM ERECTION DEVICES?**

Vacuum erection devices work best in patients who are able to achieve a partial erection on their own. After having adequate foreplay, which creates a mild erection, the partner can be of help in applying and using the vacuum device. In any type of sex therapy, the partner's full acceptance of whatever technique used is always helpful.

### **ADVANTAGES**

One of the major advantages of vacuum erection devices is safety. There is no surgery, internal injections or significant side effects. The vacuum erection device will work in almost any type of erectile problem. The cost of the vacuum erection device is less than surgery or the continued use of self-injection treatments. The vacuum device can be used at the patient's convenience and at anytime. Most of the major companies that manufacture vacuum erection devices provide a refund policy if the vacuum erection device is not successful. The vacuum erection devices range in cost from \$300 to \$500 and require a prescription. Some insurance companies will reimburse all or part of the costs.

### **DISADVANTAGES**

One of the disadvantages of the vacuum erection device is the mechanical aspect of obtaining an adequate erection. This might have a negative influence on the patient and his partner. The device takes 5 to 10 minutes to set up, which technically interferes with foreplay. Some patient's body habitus or build makes it difficult to apply the vacuum erection device. Once the rubber O-ring is applied, there is no erection between the rubber band and the body, making the penis somewhat floppy.

The O-ring inhibits the normal flow or ejaculation after orgasm in some patients. This is not harmful and the semen will pass once the rubber band is removed. Some patients complain of a sense of coldness and/or numbness of the penis after the O-ring has been placed. The O-ring should be removed after 25 to 30 minutes because of restricted blood flow. The erection will soften when the O-ring is removed. Vacuum erection devices might be harmful to patients who have blood clotting problems or use blood thinner because of bleeding into the tissue.

### **SUMMARY**

If you have any further questions about vacuum erection devices, please don't hesitate to ask us. We have videotapes available for further information about vacuum erection devices, and you need only to borrow a tape or come into the office to view it.

### **PENILE PROSTHESES**

Implantation of a penile prosthesis is one of several options available for the treatment of impotence. The penis consists of three hollow tubes running along the length of the shaft. One of these, the urethra, runs along the bottom of the penis and brings urine from the bladder out through the end of the penis. The other two matched tubes running side by side on the top of the penis are constructed much like an automobile tire with an outer tube and an inner tube. The erection is created by the two inner tubes filling and pushing against the outer tubes much like a tire that is inflated with air.

One of the treatment options for erectile dysfunction is the placement of prosthetic inner tubes within the penis to mimic the inflation process and create an erection. Penile implants were first used in the 1950s and as time went on further advances occurred. Different types of prostheses were developed and hundreds of thousands of men throughout the world have been successfully treated with a penile implant.

Today there are three types of penile prostheses. These include the semirigid implant, the inflatable implant and self-contained inflatable implant.

### **SEMIRIGID PROSTHESES**

Semirigid implants are paired silicone-covered malleable or bendable metal rods. The semirigid prosthesis allows the penis to be rigid enough for penetration, but the malleable rods allow it to be flexible enough to allow concealment in a curved position. It is the simplest of all prostheses and has the least chance of mechanical failure. It is also the simplest to place.

The major limitations include the fact that the penis is always semi-erect. Even with the bendability, concealment is a potential problem when wearing some types of clothing. Another disadvantage is that the prosthesis does not inflate so the erection achieved is only from the size and rigidity of the prosthesis.

### **INFLATABLE PENILE PROSTHESES**

Inflatable prostheses are the most natural of the implants. These are soft-paired inner tubes made of silastic or bioflex, which are inert plastics. The inner tubes are literally filled with a solution that comes from a small reservoir placed under the muscles of the abdomen. A pump is used to transfer the fluid from the reservoir to the penile cylinders or inner tubes. The more fluid that is pumped into the inner tubes, the firmer and larger the erection. When the erection is no longer desired, the fluid returns to the reservoir, leaving the penis soft and pliable.

The major advantages of inflatable penile implant are a more natural erection with total patient control, both on the amount of fluid that is put into the penis, as well as the time the erection is desired. The erection will last indefinitely until the patient transfers the fluid back into the reservoir. One major disadvantage is that surgical implantation is a little more complicated than a simple semirigid implant. Also with the multiple parts there is a higher chance of mechanical failure, which might require revision or repair. Many of the companies do have insurance policies to cover part or all of the costs of the prosthesis replacement but not the surgical or hospital fees.

### **SELF-CONTAINED INFLATABLE PROSTHESES**

Self contained inflatable implants are paired silicone cylinders, which have a pump at the very tip of the prosthesis, along with a reservoir within the shaft that transfers fluid in such a way that the rod becomes firm.

The advantage of this type of prosthesis is that surgery is somewhat simpler than the multi-component prosthesis.

The major disadvantage is that the inflatable portion of it does not really increase the girth of the penis significantly. It is also not as soft or concealable as the multi-component implant when deflated.

### **ADVANTAGES OF IMPLANTS**

Implants are effective in treating impotence due to almost every cause. There is a 90%+ success rate when both partners are informed of the nature, and limitations of the prosthesis. Prostheses require no further treatment after implantation, and there is no external equipment, which might have negative connotations with the partner. No medicines or injections are needed and once the prosthesis is placed and functioning, there are no further costs. The newer prostheses are very reliable and the chance of mechanical failure is very low, in the range of 2 -4 % per year.

### **DISADVANTAGES OF IMPLANTS**

Once an implant has been placed, natural erections usually no longer occur. If the prostheses were then removed the normal erections are unlikely to return. There is a small chance of infection, which would require removal of the prosthesis. Some patients can develop surgical complications or anesthetic complications. Occasionally patients will notice numbness at the head of their penis and intercourse can be uncomfortable. Because the erection is not caused by increased blood flow to the penis, the head of the penis is not part of the erection, and this softness may be bothersome to some patients.

Recently the safety of silicone products, such as silastic, have been questioned. Breast prostheses using liquid or gel forms of silicone were removed from the market by the FDA. Concerns raised were the inflammatory responses to this type of silicone, which include pain, scarring and disfigurement. In addition, possible associations were raised between silicone and the development of cancer. It is noteworthy that the solid silicone breast implants that are filled with water were not removed from usage. In May 1994, a class action suit was filed against the major manufacturer of penile prostheses claiming many of these same issues. The penile prostheses are all of the solid variety and use water as a filling. Most observers feel the suit to be without basis, but of course, only time will tell and more research and following-up needs to be done. Solid silicone products are used extensively in medicine and include cardiac pacemakers and brain shunts. Thousands and thousands of implants of all types have been used for years with very little and predictable risk and side effects.

### **COSTS**

Some insurance policies will cover the cost of prosthesis and this can be established through our business office. Patients who are considering a prosthesis should be aware that other types of therapy might be available, including vacuum devices and self-injection therapy.

### **VASCULAR RECONSTRUCTIVE SURGERY**

A small percentage of patients may be candidates for some form of reconstruction of the penile blood flow. This includes patients with poor arterial blood supply and those also with venous leaking. The long-term results from this type of surgery have been generally disappointing with even the best of results showing only 2 out of 3 men being helped. Surgery is technically difficult, relatively expensive, and includes complications of nerve damage and scar tissue formation. Given the relatively low success rate, along with the technical difficulty and expense of this type of procedure, vascular reconstructive surgery has not been generally accepted widely.

### **SEX THERAPY INTRODUCTION**

For many years physicians believed almost all of the sexual dysfunctions to be caused by psychologic reasons. As we have gotten a better understanding of the physiology of erections, it has become known that many of the problems with impotence are caused, in fact, by physiologic reasons that are

uncontrollable by the patient. However, a significant number of men still develop erectile problems purely on the basis of psychologic causes. In addition, men with an underlying physical disorder often develop psychologic problems as well because of their lack of performance. Even if the physiologic or as physicians often say 'organic' problem is corrected, the man's self-image and confidence may be affected significantly enough that return to normal functioning is difficult.

Among the problems in dealing with psychologic problems is the fact that the topic is difficult to talk about or even bring up in front of a physician. Once the lack of confidence is deeply imbedded in the man's psyche, the subsequent lack of confidence becomes very difficult to remove from the man's thinking. Other emotions that may be felt include deep frustration, anger, depression and a sense of inadequacy.

Whether the cause of the difficulty with maintaining or achieving erections is purely psychologic or secondary to another physiologic cause, the end result creates a lack of confidence, which results in a 'self-fulfilling prophecy'. The patient is so fearful of not obtaining an erection that the worry becomes so overwhelming that fears are born out -- no erection or loss of erection.

Sex therapists are trained professional who deal with sex problems uniquely, and are very goal oriented to provide techniques, advice and counseling on dealing with the sexual problem only. They may provide reading and videos for help in their training. Usually only a few visits will provide definite improvement, and it is usual not to require more than a few months of treatments before seeing some definite results. Other causes of stress, obtaining adequate expectations from your partner and looking at relationships are also essential to effective sexual counseling. Some of the more specific treatments include exercises or treatment plans that are carried out in privacy of one's home and does not require in-hospital or in-office treatments. The patient's partner is definitely brought into the technique training. Working together to reduce anxiety and increase confidence, both partners can help each other to relieve some of the anxieties and reestablish normal sexual relationships.

Sex therapy is also helpful in patients who have premature ejaculation or difficulty in obtaining ejaculation.

In some patients the problems are so deep-seated that the pure psychologic techniques are nor effective. In these cases the sex therapist might work with the physician in concert using a technique such as a vacuum erection device or self-injection therapy to aid in the early achievement of erections. As the patient's self-confidence improves, these therapies might be discarded, although the can be used into the future as well. On occasion medications or injections of hormones can be used to also help initiate or stimulate early sexual functioning. Sex therapy is usually not covered by insurance policies, but it is unlikely that the counseling will need to continue past six months or so, which should keep the costs within most people's budgets.

#### **WHAT DOES NOT WORK?**

At this point there is no evidence that nutritional supplement or vitamins have any significant bearing on sexual performance. The Food and Drug Administration has currently banned the sale or advertising of all nonprescription products for the treatment of male impotence because none had been scientifically shown to be effective.

#### **WHAT IS NEW?**

Some research is currently being done on the use of drugs given in suppository form into the urethra, the urinary opening at the end of the penis. Results of the suppositories have been variable and the FDA has not released these medications for use yet. The drugs are the same as the ones used in self-injection therapy and obviously have the advantage of no needles. More will be heard about these in the future, but it is unlikely that any will be ready in the next year or so.

#### **SUMMARY**

Impotence is a treatable problem, which is not the inevitable consequence of aging. Almost all patients with impotence can be treated. A thorough evaluation looking for causes of impotence can be followed by the appropriate diagnostic testing, and then a multitude of treatment choices become available to assure that each patient has a successful outcome. In terms of determining which therapy is best for each

individual, one must be informed of all the various possibilities, both about the cause of the impotence and the type of treatments that are available. None of the treatments will significantly affect the ability to have an orgasm. If needed, psychologic support and counseling by a professional sexual counselor should be considered in many patients regardless of the cause of the impotence to help with any adjustments. Sex therapy is often helpful and can be done by a qualified psychiatrist, psychologist, physician, or sex therapist with training and experience in this specialty area. In addition to counseling, exercises and reading to help increase sexual skills and reduce anxiety and improve communications can be very helpful.