THE IDET PROCEDURE

Introduction: Intra-discal electro-thermal therapy is a minimally invasive surgical procedure, carried out in an outpatient setting, to ease the pain arising from a fissure (split) in the casing (anulus fibrosus) of a spinal intervertebral disc. In young, minimally degenerated discs which have a discrete localized fissure, it is an effective procedure and, in my opinion, produces reliable results. It does not repair the injury to the disc, so recurrence of symptoms can occur. The procedure has only been available since 1998, so long term results are unknown.

Background: Collagen is a complex protein, which occurs in joints throughout the body. Minimally elastic and extremely tough, it provides the strength of ligaments and joint capsules. Sports Medicine surgeons have shown that slack, injured ligaments can be strengthened and shortened by the application of a heated electrode during arthroscopy. This principle led pioneering Physical Medicine specialists in California, the Dr. Saal brothers, to develop a flexible heating catheter which can be passed into an injured spinal disc through a needle to heat the damaged area. The collagen shrinks and is strengthened and this leads to thickening of the anulus and reduction of pain. Since all the nerve endings of a disc are in the outer layers of the anulus they will also be affected by the heat, and so they will no longer transmit severe pain impulses to the spinal nerve and the brain.

Safety: Is IDET safe? All surgical procedures, and IDET is a surgical operation, carry some risk. That is why you should ask your doctor about his experience with IDET. How many has he done? What complications has he encountered? How many patients improved and how many failed and required additional treatment? No reliable specialist will be offended by these questions. But if you do not ask, you will never know.

There are several potential dangers. Before determining that IDET is indicated, a discogram will need to be performed. If this procedure is not carried out carefully, infection can be introduced into the disc causing discitis, a serious infection. Secondly, the IDET procedure has its own risks. During the procedure, the catheter tip may escape from inside the disc into the spinal canal. If a spinal nerve becomes heated, it may be permanently damaged. Perhaps the greatest danger is that the IDET procedure will not work and the severe pain never improves. That is usually not due to a technical failure, but is due to the wrong patient being selected for this procedure. Read the next section carefully to see who should, and who should not, have IDET.

Who Will Benefit From IDET? After a back injury has occurred, a careful physical examination is carried out by a spine specialist to determine the origin of the pain and to plan a course of treatment. If there is no sign of nerve damage,

medication or a course of physical therapy may be prescribed. If the symptoms are unrelieved, x-rays and an MRI study should be ordered. This may show that there is evidence of a disc injury, but it is not 100% reliable. If your MRI is reported normal it may mean that something other than the disc is responsible for your pain, or it may mean that you are one of the 10% of patients whose disc injury is missed by the MRI.

The only certain test of a disc injury is a discogram, but this test should be left until all other possible non-invasive treatment has been completed and sufficient time has been allowed for natural healing to take place. The discogram should be done according to established protocols, such as those published by the International Spine Intervention Society and discography should only be done by an experienced specialist. When the needle has been placed inside the disc, the pressure required to inject the x-ray dye into the disc is measured. There is some evidence that discs that open at low pressure are too badly injured to benefit from IDET. Discs that open at high pressure and show signs of minimal injury are most likely to be treated successfully by IDET. Injecting several discs, rather than just injecting a “target” disc, is necessary to determine the origin of the pain. One normal disc must always be injected to act as a control to avoid false positive results. This is especially important because discs appearing normal on the MRI may be responsible for pain. Immediately after the injection into the disc, it is essential that a CT scan is done to show the pattern of dye within the disc. This may reveal unexpected misplacement of the needle. This would mean that the discogram result is invalid and it would need to be repeated. No decisions to perform an IDET should be made until the CT scan has been reviewed; therefore the discogram and IDET procedure are not usually done on the same day.

Although IDET was described for injury to the back of the disc, tears at the front of the disc can be successfully treated IDET. This requires a different angulation of the introducing needle, and the catheter must be placed across the front of the disc. Anterior tears are usually invisible on the MRI and are only discovered by chance during discography.

Who Should NOT Undergo IDET? Now that we have several years experience it seems that IDET only works on injured discs that are not badly worn. Signs of severe wear include: gas shadow inside the disc (vacuum sign) and bony spurs around the disc margin, narrowing of the disc to less than its normal height and spondylolysis, a chronic stress fracture of the vertebra, which may all be seen on plain X-ray studies. Bone marrow changes in the end plates, known as Modic changes, are signs of severe wear seen on MRI. Any of these degenerative changes indicate that IDET will probably be ineffective. Discs that are subject to increased stress, such as those that are adjacent to a spinal fusion, fail to benefit from IDET. Patients who have already undergone spinal fusion for degenerative disc disease and those who have been fused for scoliosis or fracture, often strain

the next disc. Experience has shown that these discs do not respond well to IDET.

How Is IDET Done? This is an outpatient procedure done in a hospital or a surgery center under completely sterile conditions. Under sedation given by an anesthesiologist, the patient lies face down and using X-ray (fluoroscopic) control a needle is passed into the injured disc. It is necessary to be awake so that the patient can advise the doctor if the needle is passing too close to the nerve leaving the spinal canal. With the needle in the right place, the catheter containing the heating coil is carefully manipulated inside the disc to treat the injured area. X-ray control is used throughout to ensure correct catheter placement. The heating generator is then connected and the temperature inside the disc is slowly raised to 90 degrees. The treatment takes less than 20 minutes and then, after injecting antibiotic into the disc, the needle is withdrawn. After waiting for the sedation to wear off, the patient is allowed to go home, wearing a soft back brace for support.

What Happens After IDET? As a result of heating the inside of the disc, it is quite common for localized muscle spasm to be set up temporarily. Patients often wear an elastic back brace for two or three weeks, and they are encouraged not to spend much time sitting straight up in a chair, but rather to use a recliner or to lay back on a sofa while the initial spasm settles down. Within two or three weeks, they will be much more mobile and it is then helpful for a course of stretching exercises to be introduced. Sit-ups, bridging and other stressful exercises should be avoided until later, when the disc has had longer to heal. Patients with sedentary jobs can often return to work after four to six weeks. No one is recommended to return to heavy manual labor if they have injured a disc badly enough to require IDET. That is the quickest way to get a recurrent injury.

What Else Can Be Done? Nobody volunteers to undergo a surgical procedure such as IDET unless their symptoms are severe enough to interfere with their quality of life. If this minimally invasive procedure is excluded as a treatment option as a result of x-rays, MRI or discography, a more invasive procedure may be needed. Spinal fusion, which twenty years ago offered uncertain healing, prolonged post-operative disability and extensive muscle scarring, has improved greatly since then. Excellent healing, often measured in weeks rather than months, and with reduced muscle scarring, make this a more reasonable alternative. Total disc replacement will soon be available to replace painful, malfunctioning discs with a new spinal joint, but this is still very new and is not yet widely available in the USA.

It is important to discuss treatment options with your spinal specialist. If your specialist is unable to discuss all the options available to you, consider asking for a second opinion with someone who is.