VILLARBAJWA

PRACTICE

Autologous Stem Cell Therapy for the Treatment of Arthritis & Cartilage Regeneration in Hip & Knee Joints

What are stem cells?

Stem cells are perhaps Nature's best-kept secret. These cells, which are found in multicellular organisms, such as humans, not only have the ability to divide (mitosis) but also to form various structures such as cartilage, bone and many more. The process is called 'differentiation'.

What types of stem cell are there?

There are two basic forms of stem cell - the embryonic stem cell and adult stem cell. Adult stem cells, which are also known as mesenchymal stem cells or MSCs are of great interest to researchers, scientists and surgeons alike. MSCs are free of the controversy that surrounds the embryonic stem cells and yet have the potential to form new tissues. At the Villar Bajwa Practice we use the MSCs. This gives us the ability to repair and regenerate tissues such as cartilage and bone more effectively.

MSCs can be found at various locations in the body, including bone marrow, adipose tissue (fat) and peripheral blood. We favour the use of marrow-based or peripheral blood stem cells.

Where do the cells come from that are used in stem cell therapy?

At the Villar Bajwa Practice the stem cells are harvested autologously - directly from the patients. Consequently, there is no risk of disease transmission, rejection or ethical controversy that can exist using cells from an unrelated donor. All of us have a supply of MSCs in various tissues and these can be harvested using specialised techniques.

Where can stem cells be used?

By their very nature, stem cells can be used in a variety of different situations to help in the repair and regeneration of damaged tissues and structures. In joint preservation, one role of stem cells is in the possible treatment of arthritis of the hip and knee joints. This can potentially be accomplished by regeneration of cartilage (gristle). In simple terms, the gristle on the joint surface is the barrier to arthritis. Once this layer is damaged, the joint is likely to progress to frank arthritis, which presents as pain, stiffness and loss of function. Stem cell therapy may be used in an attempt to encourage regeneration of this gristle layer. The procedure is designed to help preserve the natural hip and knee joints and perhaps to delay or prevent the need for more major operations such as replacement of the hip or knee joint.

Another area of particular interest for stem cell therapy in the hip and knee is to help with the regeneration of dead bone. In a condition called avascular necrosis, or AVN, there is death of a segment of the bone near the joint. This can sometimes progress onwards to become severe arthritis. Early reports of the use of stem cells to regenerate bone in AVN are encouraging.

There are many other reasons why stem cells might be used. These techniques may be relevant to different patients and are employed as required.

What does the procedure involve?

The procedure is in the form of arthroscopy (keyhole surgery) of the hip or knee. Patients often ask whether stem cell therapy involves surgery on two separate occasions. For the techniques that we use, only a single operation is normally required. This is normally carried out as day-case procedure for knee arthroscopy; most hip arthroscopy patients will have one night's stay in hospital. Once the patient is under general anaesthesia, an aspirate of their blood and/or marrow is taken with a special needle. The aspirate is then processed in the operating theatre, and while the patient is still asleep, in order to harvest the stem cells. At the same time the keyhole operation (arthroscopy) is commenced to access the hip or knee joint. The surgeon uses specialist arthroscopy techniques to prepare the tissue bed so that it is ready to receive the stem cells. The harvested stem cells, alongside a suitable scaffold, are then injected through the same keyholes that are routinely used for the arthroscopy.

What are the side effects?

Any surgical intervention carries a degree of risk however the surgical procedures used for stem cell therapy are the same as those for routine hip or knee arthroscopy operations. There is a theoretical risk of infection, but this is low and surgery is in any event covered by antibiotic treatment. As for the stem cells, these are derived from the patient's own blood or marrow, so there is no risk of rejection or disease transmission.

What is the evidence for stem cell therapy?

Stem cell therapy is a relatively new procedure. However, it has created so much interest worldwide that extensive research has been taking place in this field. Animal and human studies have been published that have suggested a safe and favorable response to stem cell therapy in hips, knees and even ankles. Our practice routinely collects data on almost all patients who undergo surgical treatment under our care; assessment questionnaires are periodically sent to those who have undergone surgery. This is an invaluable source of information that helps us to inform our patients, publish in the literature, and to train others who are interested in the techniques we undertake.

Next Steps – what to do if you think you may benefit from stem cell therapy?

Insured Patients

Simply visit your GP and ask them to refer you to either Mr Richard Villar or Mr Ali Bajwa, both surgeons are based at the Villar Bajwa Practice within Spire Cambridge Lea Hospital, clinics are held regularly in both Cambridge and London. Your GP will write a letter of referral and then either you or your GP can contact us to arrange your first out-patient appointment on 01223 266 961 or you can ask your GP to fax the referral letter to us on 01223 233 243.

Self-Pay Patients

For most self-pay treatments, you'll need a GP referral letter to bring to your first appointment. Simply call us on 01223 266 961 to request a guide price or to discuss your personal situation.

For more information about the Villar Bajwa Practice please visit www.villarbajwa.com