Yesterday's research ... Tomorrow's cures

Ajeya P. Joshi, M.D.
Position: Physician, The San Antonio Orthopaedic Group, LLP
Medical specialty: Spinal disorders
About Joshi: Joshi is a graduate of Harvard Medical School. He completed a fellowship in spinal disorders at Baylor College of Medicine. His clinical interests include minimally invasive lumbar and cervical spine technologies.

Synthetic bone graft substitutes that have been developed over the last 10-15 years offer great promise for patients with complex spinal conditions. Often, these patients have had prior surgery and the limited supply of bone graft material in their own bodies has been used up. Without synthetic substitutes, corrective surgery would not be possible.

The bone graft substitutes used in spinal surgery vary from preparations derived from bone-bank bone to completely artificial materials prepared harnessing the power of molecular biology to grow proteins directly from DNA.

A newer technology which has great promise is the use of stem cells from the patient's own body. These special cells have the potential to turn into a variety of different cells, such as cartilage cells, or bone-forming cells. Certain bone graft substitutes are available which rely on withdrawing cells from the patient's bone, picking out the most appropriate stem cells, and then putting them on a special matrix to create a bone graft with particular advantages. First, withdrawal of the cells is not a painful, invasive process like the traditional harvesting of bone graft from the patient. They are withdrawn through a small metal device similar to a straw, through a much smaller incision in the skin. Secondly, unlike some commercially available bone graft preparations, grafts prepared using the patient's own cells contain an element, namely the cells themselves, which have the ability to serve as a "director," leading the process of fusion much like the conductor of a band or orchestra leads all the instruments to play in a unified fashion.

The bone graft substitutes commonly used in spine surgery have gone through a process of testing in animal studies and then in carefully controlled, FDA-monitored human studies. This leads to a status of FDA approval.

www.sanantoniobusinessjournal.com

26 OCTOBER 23, 2009

Yesterday's research ... Tomorrow's cures

Ajeya P. Joshi, M.D.
Position: Physician, The San Antonio Orthopaedic Group, LLP
Medical specialty: Spinal disorders
About Joshi: Joshi is a graduate of Harvard Medical School. He completed a fellowship in spinal disorders at Baylor College of Medicine. His clinical interests include minimally invasive lumbar and cervical spine technologies.

Synthetic bone graft substitutes that have been developed over the last 10-15 years offer great promise for patients with complex spinal conditions. Often, these patients have had prior surgery and the limited supply of bone graft material in their own bodies has been used up. Without synthetic substitutes, corrective surgery would not be possible.

The bone graft substitutes used in spinal surgery vary from preparations derived from bone-bank bone to completely artificial materials prepared harnessing the power of molecular biology to grow proteins directly from DNA.

A newer technology which has great promise is the use of stem cells from the patient's own body. These special cells have the potential to turn into a variety of different cells, such as cartilage cells, or bone-forming cells. Certain bone graft substitutes are available which rely on withdrawing cells from the patient's bone, picking out the most appropriate stem cells, and then putting them on a special matrix to create a bone graft with particular advantages. First, withdrawal of the cells is not a painful, invasive process like the traditional harvesting of bone graft from the patient. They are withdrawn through a small metal device similar to a straw, through a much smaller incision in the skin. Secondly, unlike some commercially available bone graft preparations, grafts prepared using the patient's own cells contain an element, namely the cells themselves, which have the ability to serve as a "director," leading the process of fusion much like the conductor of a band or orchestra leads all the instruments to play in a unified fashion.

The bone graft substitutes commonly used in spine surgery have gone through a process of testing in animal studies and then in carefully controlled, FDA-monitored human studies. This leads to a status of FDA approval.