The next generation

Trycare discusses the benefits of porcine collagenated biomaterial used in conjunction with thermo-sensitive gel for bone regeneration

It is well accepted in the field of bone regeneration that autologous bone is the gold standard. Because of its biological compatibility it has consistently been reported in scientific literature to provide excellent clinical results.

Autologous hard bone is composed of inorganic hydroxyapatite minerals, and organic components, mainly collagen and a small percentage of other proteins and growth factors. Autologous bone offers the best biological potential for the grafted site.

On the one hand, osteoblasts from the bone marrow of the adjacent walls to the defect have a completely biocompatible surface to adhere to, to proliferate and deposit new bone. Conversely, osteoclasts can act effectively in the progressive resorption of the autologous graft, allowing appropriate replacement by newly formed bone.

The main drawback to using autologous intraoral bone is its availability. There is frequently insufficient to complete the guided bone regeneration (GBR) surgery and therefore, extraoral harvesting, for example from the iliac crest, is often necessary for a large defect.

Autologous bone substitutes

Today the biomedical industry offers many different heterologous bone substitutes that overcome this shortage, or even avoid the need for use of autologous bone at all. Research clearly demonstrates the validity of these substitutes. They fall into two main groups and some perform better than others.

It is possible to identify two main groups: purely mineral (single phase) and those that contain both collagen and mineral phase xenografts, in addition to mineral, that preserve also the heterologous collagen that is always present in the pre-processed bone matrix. This collagen is made perfectly biocompatible through innovative production treatments.

Laboratory studies demonstrate that the physical and chemical characteristics of porcine collagenated biomaterials are very similar to human bone. The fundamental and beneficial role of collagen in GBR has



Courtesy of Professor Tiziano Testori, Italy



Courtesy of Dr Roberto Rossi, Italy



Courtesy of Dr Antonio Murillo Rodriguez, Spain

been widely researched and demonstrated: it stimulates angiogenesis within the grafted site and acts as substrata for a differentiation and proliferation of all the cells active in the bone regeneration process.

Gen-Os and TSV gel

Osteobiol's most popular biomaterial is Gen-Os, a porcine collagenated bone substitute with a granule size ranging from 250 to 1,000µm. Its biological characteristics are very close to autologous bone.

The putty-like consistency aids placement during surgery and simplifies the handling of the membrane

Recently, this biomaterial has been complemented by a new thermos-sensitive gel (Osteobiol TSV gel) that allows both rapid and effective stabilisation of Gen-Os granules. The putty-like consistency aids placement during surgery and simplifies the handling of the membrane that covers and protects the graft.

This combination of products is very easy to use: storing the TSV gel in a refrigerator for about 20 minutes before the surgery lowers its viscosity so that mixing with Gen-Os granules in a sterile dappen is easy. As the temperature rises the mixture becomes putty like. The mix can then be placed into the defect.

At body temperature, its viscosity will increase further, making the graft more sticky, stable and easy to work in situ. TSV gel can also be applied to the rough side of Evolution membrane, making it adhere to the Gen-Os graft thereby stabilising it during the delicate suturing phase. **IDT**

For more information visit www.trycare.co.uk or call 01274 881 044.