
Basic Science Symposium I: Bone Graft Substitutes

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ABSTRACT

INTRODUCTION

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Bone graft substitutes is a general term to describe any material used to aid in regeneration of bone, such as in a fracture, or in promotion of bone, such as in a spine fusion. There is a wide spectrum of materials used today for the purpose of grafting; however, their ultimate goal remains the same-to form functionally viable bone that meets the needs of the site.

The first known bone grafting procedure documented in modern medicine was described in the early nineteenth century and used what is still considered by some the gold standard, autograft. In the early 1990s, demineralized bone matrix and processed structural allografts became commercially available. In 2002, the first bone morphogenic protein became available with the FDA clearance of rhBMP-2 on a type-I collagen sponge in conjunction with a tapered, threaded intervertebral fusion cage (LT-Cage; Medtronic

Sofamor Danek, Minneapolis, Minnesota) for the indication of degenerative lumbar disc disease.

Today, there is a plethora of options available-calcium-based, collagen-based, polymer, allograft, synthetic proteins-and the list goes on. But the difficulty lies in applying these materials in the right indications. Spine surgery is also in a period of great flux with new technologies exploding into the market. The question of how to pair these new materials for grafting with these surgical options is largely not well understood. The goal of this symposium is to ask experts in the field of bone graft substitutes what the standards of today are and how they should be applied to the technologies of tomorrow. We would like to thank our panel for their interesting and candid answers to the thought-provoking questions below.

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