

Table 24-1

FDA-Approved Premixed Antibiotic-Impregnated Cements

<i>Name</i>	<i>Manufacturer</i>	<i>Antibiotic per 40 g of Cement</i>
VersaBond AB	Smith & Nephew	1.0 g Gentamicin
Simplex P	Stryker	1.0 g Tobramycin
Cemex Genta	Exactech	0.5 g Gentamicin
Palacos G	Zimmer	0.5 g Gentamicin
Cobalt G-HV	Biomet	0.5 g Tobramycin
Cobalt G-HV	DePuy Orthopaedics	1.0 g Gentamicin

Note: FDA approval is only for implantation at the site of a two-stage exchange procedure.

ity and stability, especially when articulating spacers are used; (4) diminishes soft tissue contractures; and (5) facilitates ease of reimplantation.

Antibiotic-impregnated beads of cement on a string can be utilized as a treatment adjunct in acutely infected total joints; beads are placed about the joint at the time of irrigation and debridement and removed shortly thereafter.

Preparation

Antibiotic-impregnated cement for definitive implantation of prosthetic devices can be hand-mixed in the operating room or purchased premixed (Table 24-1). The advantages of hand-mixing include lower cost and the ability to customize antibiotic choice and dose. The ratio of antibiotics to cement influences the mechanical properties of cured cement. The current consensus is to use 1 to 2 g antibiotic per 40-g package of bone cement for final implantation in TJA. The choice of antibiotic also affects the volume that can be used safely without altering its mechanical properties of cement. Persson et al reported that the mechanical properties of cement are altered by addition of 2.5% of vancomycin but not by 1.25% of vancomycin nor 1.25% of meropenem. This is thought to be due to the amphoteric properties of vancomycin, resulting in a lower-molecular-weight polymetric chain that compromises the mechanical properties of cement.

Hand-mixing is optimized by utilizing a small mesh strainer to obtain an ultrafine powder.² Vacuum-mixing also improves the mechanical properties of antibiotic cement. Postak and Greenwald nevertheless reported that the mechanical properties of hand-mixed cement are inferior to the premixed form.³

A recent study has confirmed that species of staphylococcus, streptococcus, and enterococcus account for the majority of periprosthetic infections, with sensitivity profiles of 96% to vancomycin, 90% to tobramycin, and 88% to gentamicin.⁴ Elusion characteristics