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# QUESTION 8: Does the use of allografts alter the recommended duration of prophylactic antibiotics?

**RECOMMENDATION:** No. Allografts are avascular materials that are prone to contamination and may serve as a scaffold for bacterial colonization and biofilm production, similar to a prosthesis or osteosynthetic material. However, it is difficult to establish a causal relationship between the use of an allograft and subsequent infection. Thus, there is no evidence to support the use of extended antibiotic prophylaxis.

**LEVEL OF EVIDENCE:** Limited

**DELEGATE VOTE:** Agree: 91%, Disagree: 6%, Abstain: 3% (Super Majority, Strong Consensus)

## RATIONALE

Allografts are typically utilized to address bone defects or damaged tendons at the time of revision procedures for patients who have already undergone multiple operations. By virtue of their operative history, these patients are already associated with a higher risk of infections (2 to 3 times) [1] compared to primary total joint arthroplasty patients. One recent study of fifty consecutive extensor mechanism allograft reconstructions in total knee arthroplasty (TKA) reported an infection rate of 10% [2]. The pooled infection rate from a systematic review and meta-analysis of proximal femoral allograft in revision total hip arthroplasty (THA) was reported to be 8% [3]. Allografts are avascular materials that, similar to a prosthesis or osteosynthetic material, are prone to contamination and may serve as a scaffold for bacterial colonization and biofilm production. However, it is difficult to establish a causal relationship between the use of an allograft and subsequent infection. The question of whether the antibiotic prophylaxis in such complex cases should be altered is a separate discussion from treating infections arising from undetected contamination of the allograft.

There are no high-quality studies available comparing differences between the duration of systemic antibiotic prophylaxis with and without allograft use in primary or revision total joint arthroplasty. Allograft bone may be utilized in different forms including untreated or processed, gamma-irradiated, chemically sterilized, and as fresh frozen product. A contamination rate of up to 23% immediately after aseptic procurement of unprocessed and unsterilized allograft has been reported [3]. Alternatively, sterilization reduces bacterial contamination rates approaching 0% after multiple decontamination processes [4]. An efficient "prophylaxis" may only be expected after using processed or sterilized allografts [5], perhaps by conferring additional local antimicrobial protection [6].

Two-stage procedures for infected TKA [7] and THA [8] with allograft bone demonstrated no differences with respect to short and long durations of antibiotic therapy and reinfection rates; however, antibiotic-impregnated bone cement was utilized in these cases. Withholding systemic antibiotic therapy has also been reported and recommended following revision (THA) for periprosthetic joint infection with adjunctive local antibiotic bone cement elution, except in cases of multiple-operated patients infected with highly-resistant organisms [9]. High quality studies evaluating the optimal duration of prophylactic antibiotics during allograft reconstructive procedures are warranted.

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