ACDF Graft Selection by Surgeons: Survey of AOSpine Members

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Introduction
The choice of graft material for anterior cervical disc fusion (ACDF) surgery is presumed to be very important in achieving fusion. Worldwide, a large diversity of graft options exists but no published data exist on actual use. Our objective is to determine the most commonly used graft materials in ACDF, whether the choice is affected by surgeon’s training, years in practice, geographical location of practice setting, or surgeon’s perceived difficulty in achieving fusion for a particular case. We also want to confirm our previous assumption that surgeons feel that the choice of graft material is important for outcome and that there is sufficiently good comparative and safety data on the most common grafts.

Materials and Methods
A 23-question survey was sent out to 5,334 surgeons using the Global AOSpine database. Response data were then stratified into surgeon training, years of practice, practice type, and global region. To further characterize type of ACDF graft, we classified common graft materials into structural and nonstructural components.

Results
Nearly all surgeons, 94.6%, performing ACDF believe that cervical disc fusion is important for a successful patient outcome. Overall, 89.3% of the surgeons believe that graft impacts fusion rates and 86.0% affect time to fusion. The use of a cage is currently the most common structural graft component used worldwide at 64.1%. Of the surgeons who use cages, the PEEK cage makes up for 84% of them. North American surgeons have stopped this trend and use composite allograft more commonly. Surgeon experience seems to be positively related to the use of a cage because surgeons with a greater number of years of practice are more likely to select a cage. The choice to add a nonstructural graft component was reported at 74%. This result was similar for performing multilevel fusions at 72.8%. The most common nonstructural graft material depends on the type of surgery, simple or complex. For simple cases, local autograft is most common and for multilevel fusions, allograft iliac cancellous is most widely used. Most surgeons are not satisfied with the available literature comparing the effectiveness of grafts, but believed there was sufficient evidence to support the use of their chosen graft.

Conclusion
Almost all surgeons believe that fusion is important to ACDF surgery outcomes and that most surgeons believe choice of graft impacts fusion. However, this survey indicates that there is great variability in the type of graft material used by spine surgeons across the world and surgeons feel that there is insufficient comparative data to help choose between graft types. This variability in surgeon practice and gap in the literature indicate an important opportunity to change surgeon practice with well-conducted comparative studies.