

Development of Anterior Lumbar Interbody Fusion (ALIF) Peek Cage Based on the Korean Lumbar Anatomical Information

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Abstract : The aim of this study is to develop an anterior lumbar interbody fusion (ALIF) PEEK cage suitable for Korean people. In this study, CT images were obtained from Korean male (173cm, 71kg) and 3D Korean lumbar models were reconstructed based on the CT images to investigate anatomical characteristics. Major design parameters of anterior lumbar interbody fusion (ALIF) PEEK Cage were selected using the morphological measurement information of the Korean Lumbar models. Through finite element analysis and mechanical tests, the developed ALIF PEEK Cage prototype was compared with the Fidji Cage (Zimmer.Inc, USA) and it was found that the ALIF prototype showed similar and/or superior mechanical performance compared to the Fidji Cage. Also, clinical validation for the ALIF PEEK Cage prototype was carried out to check predictable troubles in surgical operations. Finally, it is considered that the convenience and stability of the prototype was clinically verified.

Keywords : inter-body anterior fusion, ALIF cage, PEEK, Korean lumbar, CT image, animal test

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