

Cervical arthroplasty versus anterior cervical discectomy in the treatment of symptomatic cervical spondylosis

A protocol

Yi Tong, MD^{a,*}, Xufeng Jia, MD^b, Yunlong Zhou, MD^c, Daxiong Feng, MD^d, Dechao Yuan, MD^a

Abstract

Background: Anterior cervical discectomy and fusion (ACDF) and cervical disc arthroplasty (CDA) are both the effective techniques in treatment of cervical spondylosis. The purpose of this present retrospective cohort research was to assess the efficacy and safety of ACDF and CDA in treating the symptomatic cervical spondylosis over the 6-year follow-up.

Methods: From our registry database, we identified retrospectively patients who received CDA or ACDF in our academic institutions from 2012 to 2015. The study was approved by the Institutional Review Board in Zigong No.4 People's Hospital (Z10058072). All the subjects who participated in this trial were informed consent in writing. The inclusion criteria were the degenerative disc diseases between C3-7 resulting in myelopathy or radiculopathy, which was unresponsive to the conservative treatment. The clinical results were determined via Short Form-36, and neck disability index, numerical scoring scales for complications, arm pain and neck pain. The radiographic assessment contained the cervical lordosis, and the motion range of the functional spinal unit and total cervical spine. The routine follow-up was performed to collect the data of radiographic and clinical assessment at 6, 12, 24, 48, and 72 months before and after the surgery.

Results: This study had limited inclusion and exclusion criteria and a well-controlled intervention. It was assumed that both techniques could obtain the similar postoperative effects.

Trial registration: This study protocol was registered in Research Registry (researchregistry5878).

Abbreviations: ACDF = anterior cervical discectomy and fusion, CDA = cervical disc arthroplasty.

Keywords: cervical spondylosis, anterior cervical discectomy and fusion, cervical disc arthroplasty, study protocol

1. Introduction

Cervical spondylosis is a kind of chronic degenerative disease of cervical spine. It affects the intervertebral disks and vertebral bodies in the neck, leading to ligament hypertrophy, osteophytes,

and herniated intervertebral disks.^[1,2] This may ultimately lead to spinal cord and nerve roots compression. Tingling, weakness, and numbness, headache and neck stiffness, as well as arm or neck pain are the common symptoms of cervical spondylosis. Numbness, pain, and other symptoms are reported to be associated with insomnia and depression.^[3-5]

Anterior cervical discectomy and fusion (ACDF) has yielded very significant results in the majority of patients with persistent nerve roots who have not responded to the nonsurgical approaches. For decades, ACDF has been extensively utilized because of its high clinical success rate and it is regarded as a gold standard for the symptomatic cervical spondylosis surgical treatment.^[6-8] Nevertheless, there are currently a number of unique adverse events related to this procedure, containing adjacent-level disc disease.^[9] Cervical disc arthroplasty (CDA) is also an effective method to treat the degenerative cervical disc disease. The purpose of CDA is to avoid the fusion side effects, at the same time, maintain segmental motion and normal disc height.^[10,11] It also avoids the complications due to cervical immobilization and anterior cervical plating.^[12] Nevertheless, over time, some studies have shown that such surgery can produce certain adverse reactions, including the heterotopic ossification and increased arm pain or neck pain after operation.^[11,13]

A lot of studies have compared the efficacy of ACDF and CDA in treating the symptomatic cervical spondylosis.^[7-11] As far as

YT and XJ both of authors contributed equally to this work.

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^a Department of Orthopedics, Zigong No.4 People's Hospital, ^b Department of Orthopedics, The People's Hospital of Jian Yang, ^c Department of Orthopedics, The People's Hospital of Le Shan, ^d Department of Orthopedics, The Affiliated Hospital of Southwest Medical University, Sichuan, PR China.

* Correspondence: Yi Tong, Department of Orthopedics, Zigong No.4 People's Hospital, Sichuan, 643000, PR China (e-mail: tongyi07832@163.com).

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Investigation: Yi Tong, Xufeng Jia.
Methodology: Yunlong Zhou.
Resources: Daxiong Feng.
Software: Daxiong Feng.
Supervision: Yi Tong.
Validation: Dechao Yuan.
Visualization: Daxiong Feng.
Writing – original draft: Yi Tong, Xufeng Jia.
Writing – review & editing: Yunlong Zhou.

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