Cervical Spinal Arthroplasty

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Anterior cervical discectomy and arthrodesis is the preferred treatment for many individuals with symptomatic cervical spondylosis. This management strategy is successful for the majority of patients and the short-term results are very good. However cervical spinal arthrodesis perturbs normal cervical spinal biomechanics and appears to be associated with accelerated degeneration of the adjacent segments. There is the potential to further improve patient outcome and the long-term success rate. Cervical arthroplasty is a rapidly developing treatment option which addresses the concerns with arthrodesis. It is important to understand the clinical history and design progression of these devices as they become incorporated into standard clinical practice. The longest clinical experience with cervical disc prosthesis involves a metal-on-metal design which was first implanted in 1991. This device has progressed to a 5th generation and valuable clinical information has been learned at each stage of development. Numerous clinical trials involving treatment of end-stage patients with primary single level disease, management of multilevel disease and prospective randomized trials comparing the Prestige device to arthrodesis have been performed. The rationale for the original design and each subsequent generation will be reviewed. The clinical experience utilizing the Prestige Cervical Disc Replacement will be described. Cervical arthroplasty will undoubtedly be an important tool in the future treatment of degenerative cervical disc disease.