GANDER REVIEW

EIGHT-YEAR CLINICAL AND RADIOLOGICAL FOLLOW-UP OF THE BRYAN CERVICAL DISC ARTHROPLASTY

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This prospective single surgeon series of twenty-one patients who received Bryan cervical disc replacement procedures (Medtronic Sofamor Danek Inc.) at twenty-seven levels, involved clinical and radiological data at eight years post-operative. Although anterior cervical decompression and fusion (ACDF) affords a predictable and durable solution to compressive root disorders, degenerative spondylosis, and myleopathy associated with the cervical spine, the widely accepted subsequent incidence of adjacent segment degeneration in roughly one-quarter of these patients is thought in part to be attributed to increased strain resulting from ACDF immobilization. Cervical arthroplasty potentially decreases the affect of adjacent segment strain through motion preservation. Early follow up studies (2 - 4 yrs postop) are currently all that is available regarding these devices.

This study sought to provide more long term follow-up findings. Although thirty consecutive patients received the Bryan disc for indications of cervical disc herniation associated with radicular symptoms, nine of the patients were either lost to follow-up or had incomplete data and were thus not included in this study. Fifteen patients had a single level procedure and six patients had a two level procedure. The average age of the patients was 46 years (range - 26 to 65). None of the patients had myelopathic symptoms or findings. The implant consists of porous coated titanium endplate shells associated with a polyurethane sheath and polyurethane "nucleus". The sealed implant has saline within the sheath and it provides relatively unconstrained cervical segment motion.

Radiographic assessment included evaluation of flexion - extension lateral radiographs with measurements of the relative position of the shell endplates of the prosthesis relative to each other. (Continued)

Flexion - extension movement measured at less than 2 degrees was defined as "fusion" of the motion segment. Heterotopic bone formation was graded according to McAfee et al scale of 0 - 4 (with 0 indicating no visible heterotopic bone and 4 indicating bony ankylosis). A modified Odom score for functional outcome as well as VAS scores were periodically obtained for these patients.

None of the patients included in the eight year follow-up had recurrent or persistent radiculopathy or other complications that would have required prolonged hospitalization or revision surgery. None of the patients had surgery on adjacent levels. Two of fourteen employed patients reported moderate of severe occupational limitations, while the other twelve reported no occupational limitations. According to the Odom criteria, eighteen of the 21 patients had excellent outcomes. The average VAS score for neck pain was 1.7 (range 0 - 8), with about half the patients having no neck discomfort. Six of the twenty-one levels were deemed to have fused. "Of the six cases that were immobile, five had range of motion of 3 degrees or less at 1 year after surgery and one was immobile at two years after surgery." There was one case of implant migration that stabilized but no cases of subsidence or loosening were noted. The authors noted that the absence of lordosis in the Bryan disc and a tendency for the prosthesis to fuse or become fixed in kyphosis (average of 7.4 degrees).

Heterotopic ossification was noted in about half the patients and represented a more significant finding than the 17.8% reported by Lang et al among 90 Bryan disc replacement recipients at one year. Adjacent segment degeneration was seen in four patients or 19% of the patients reviewed for this study. The authors include the following statement in their "Discussion": "Clinical and radiological observations from the present study neither support nor refute the theory that cervical arthroplasty reduces the incidence of adjacent segment disease in the long term."
The results of these findings must be evaluated with an understanding that nine of the original thirty patients in this prospective study were not included in the analysis.

GANDER REVIEW

PRECURSORS FOR LATE PRETERM BIRTH IN SINGLETON GESTATIONS

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This retrospective observational study of singleton deliveries included among the documented 228,668 singleton deliveries within the Consortium on Safe Labor Study (2002 to 2008). 'The study sought to provide epidemiologic data from the Consortium on Safe Labor which reflects current obstetrical practice in the United States. Different precursors for late preterm births (between 34 and 36 weeks gestation) among 15,136 deliveries were compared to a control cohort of 170,593 deliveries occurring at 37 0/7 to 41 6/7 weeks gestation. These precursors for late preterm birth with indicated deliveries, were further characterized by the individual medical and obstetrical complications. Additionally, the incidence of neonatal morbidities and mortality by gestational age for the different precursors were determined.'

The rate for preterm birth for singletons had increased in the U.S. from 9.7% in 1990 to 11.0% in 2005, is entirely attributable to "medically indicated" deliveries at 34 to 36 weeks of gestation, rather than spontaneous labor or preterm premature rupture of membranes (PROM). It is known that neonates delivered prior to 37 weeks gestation have associated higher morbidity and mortality rates, than those ≥ 37 weeks gestation. The authors believe that there are likely indication that can be expectantly managed to ≥ 37 weeks gestation, decreasing the risk of neonatal morbidity and mortality without a significant increase in stillbirth.'

Conclusions:

'Late preterm birth comprised 7.8% of all births and 65.7% of preterm births. The percentages of precursors were 29.8% spontaneous labor, only 32.3% preterm PROM, 31.8% indicated and 6.1% unknown. Different precursors for delivery were associated with varying incidences of neonatal morbidity. One in 15 neonates were delivered late preterm for "soft" or elective precursor indications. The study also found that among the two delivery cohorts, neonatal morbidity and mortality were increased compared to delivery ≥ 37 weeks for these same indications.'

GANDER REVIEW

Benign Prostatic Hyperplasia and Male Lower Urinary Tract Symptoms: Epidemiology and Risk Factors

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J. Kellog Parsons

This review article examines the epidemiology of benign prostate hyperplasia (BPH) and male lower urinary tract symptoms (LUTS). Although BPH is the primary cause of LUTS, BPH and LUTS have been used interchangeably to describe a constellation of lower urinary tract symptoms icluding: difficulty initiating and maintaining micturition, reduced micturition force, incomplete voiding, and frequency. "The incidence and prevalence of BPH and LUTS are increasing in accord with the aging population. Although genetic and age related risk factors are primarily responsible for the onset and severity of LUTS, affecting 15% to 60% of men >40 years of age, modifieable factors have been identified. "Serum dihydrotestosterone [DHT], obesity, elevated fasting glucose, diabetes, fat and red meat intake, and inflammation increase the risk; vegetables, regular alcohol consumption, exercise, and NSAIDs decrease the risk."

" In the Boston Area Community Health survey, LUTS prevalence increased from 8% in men 30–39 years of age to 35% in men 60–69 years. In the Rancho Bernardo study, 56% of men 50–79 years of age, 70% of men 80–89 years of age, and 90% of men 90 years of age or older reported LUTS."

Increased prevalence of LUTS is associated with metabolic syndrome (i.e. obesity, glucose intolerance, dyslipidimia, and hypertension) and coronary artery disease. "A meta-analysis of 11 published studies (*n* = 43,083 men) indicated that moderate to vigorous physical activity reduced the risk of BPH or LUTS by as much as 25% relative to a sedentary lifestyle, with the magnitude of the protective effect increasing with higher levels of activity." While a meta-analysis of 19 published studies (n=120,091) found up to a 35% decrease in BPH among men who drank daily, but an increased risk for LUTS. Genetic predisposition and midlife dihydrotestosterone levels (DHT) are strongly correlated with the development of BPH and LUTS.