Cerebrospinal Fluid Research

Oral presentation

Outcome of surgery for scoliosis in patients with myelomeningocele

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Background

Since the 1950s, patients with severe, progressive scoliosis have undergone spinal instrumentation to reduce the curvature and to provide more stability to the spinal fusion. Patients that have scoliosis secondary to myelomeningocele (MMC), have been shown to have an increased number of complications compared to patients with scoliosis due to other conditions. There is little literature on risk factors for and ways to prevent post operative complications for these patients. Many children have been found to have asymptomatic urinary tact infections due to their neurogenic bladder.

Materials and methods

We reviewed the outcome for spinal fusion surgeries on 63 patients with MMC over the past 45 years. Patients were selected from a prospectively collected comprehensive database of all patients with MMC seen at our institution. Preoperative health values were based on nutrition level and cultures of urine each alone and combined. Complications were divided into major and minor and were correlated to preoperative nutritional status and presence of active infection using Fisher's exact test.

Results

84 different spinal fusion operations for 63 patients were recorded. Age at surgery ranged from 1.5–18 years; mean 10.57 years. Three surgeons performed 80% of the cases with 20% performed by 6 other surgeons. There was no significant difference (P = 0.17–0.29) amongst the complication rates by surgeon. Patients with preoperative urinary tract infection only or preoperative poor nutrition and presence of infection had significantly increased major and minor complications (P = 0.001, P = 0.002). Preoperative poor nutrition alone was not correlated with an increased rate of complications (P = 0.19) based on a hemotocrit ≤ 35 but was significant at a hematocrit ≤ 33 for both perioperative spine infection and rod removal (P = 0.025 and P = 0.05 respectively). The risk was most strongly correlated with perioperative infection (P = 0.003) and not with decubitus formation (P = 0.22) or pseudarthrosis (P = 0.11).

Conclusion

Poor Nutrition (HCT ≤ 33) alone, in the presence of an active urinary tract infection, or the infection alone in patients prior to surgery is associated most highly associated with an increased incidence of postoperative spine infections as well as partial or full rod removal for the former. It is easily detected and treated. If necessary, postponement of the surgery to regain normal values and sterile cultures may be advisable. We recommend that urinalysis and urine cultures as well as nutritional evaluations be a part of the routine preoperative evaluation of children with MMC who are to undergo major spinal reconstructive surgery.