

DIAPHRAGM PACING(DP) IN NON-TRAUMATIC SPINAL CORD INJURED PATIENTS WITH RESPIRATORY INSUFFICIENCY

INTRODUCTION

Non-traumatic spinal cord injuries(NTSCI) are increasing. They are generally older with more comorbidities and those with high cervical injury will likely require invasive mechanical ventilation.

METHODS

Retrospective review of prospective IRB protocols. All patients underwent laparoscopic diaphragm mapping and implantation of electrodes for diaphragm strengthening for respiratory improvement.

RESULTS

From 2007 to 2018, 41 NTSCI patients were identified. Etiologies encompassed 7 broad categories: inflammatory diseases(4), neuromuscular diseases(8), brain tumors/vascular insults(8), degenerative diseases(7), abscesses(5), recurrent pneumonias(5) and other(4). The age range was 2.3 to 82 years (44.3 average). Twenty-nine patients were dependent on tracheostomy mechanical ventilation (TMV) and 12 utilized other respiratory support. The average time was 20.2 months (range of 5 days to 15 years). Overall 48% have died, 9 occurred early. In the early death group, 5 of these patients had degenerative disease and the average age was 75 years; 2 had spinal abscess; 1 had recurrent malignancy; and 1 had long-term SCI. In the 21 patients alive, the average survival is 38 months (4 months to 8.5 years). The average age at implant in the survival group is 31.7 years and 55.3 years in the deceased group. A subset analysis was done on 5 patients with respiratory failure years (8-44) after their index event and 40% were able to again be weaned from TMV. Both of these patients were under the age of 38.

CONCLUSION

There is a role for DP in NTSCI with 73% having a positive effect (30/41). Those with degenerative diseases, spinal abscesses and advanced age do not respond as well.