CASE REPORT: Glossopharyngeal and neck accessory muscle breathing permit ventilator free time in a young woman with C2 complete tetraplegia and tracheostomy

D. Britton, L. Boitano, C. Johnson, J. Benditt, K. Bell

Objective: Complete cervical spinal cord injury (SCI) at levels above C3 results in severe restrictive respiratory impairment. As a result, mechanical ventilation is necessary to maintain life, as well as adequate breath support for speech. We present the case of a young woman with C2 complete tetraplegia who was unable to tolerate time off of the ventilator or speak without ventilatory support for more than four years post injury until she received training with glossopharyngeal breathing (GPB).
Methods: Case presentation.
Results: Initial training with GPB facilitated functional use of neck accessory muscle breathing (NAMB) in conjunction with GPB. This progress was likely aided by PT treatment focusing on neck accessory muscle strengthening. After training with GPB, this young woman was able to consistently tolerate over an hour off the ventilator and speak without ventilator supplied air after more than four years of tolerating less than two minutes off the ventilator and being unable to phonate without ventilator air.
Conclusions: Training with GPB and NAMB for persons with high level complete tetraplegia with tracheostomy warrants further study. It may facilitate tolerance of short periods of time off of the ventilator, respiratory support for speech, and transition to non-invasive modes of ventilation.