



Review of the Anesthetic Management of Patients with Post-Polio Syndrome

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INTRODUCTION

- Post-Polio Syndrome (PPS) is a neurological condition that affects individuals who previously contracted and recovered from poliomyelitis.¹
- Approximately 300,000 polio survivors in the United States are at risk, with up to 25% developing some degree of PPS. This syndrome, characterized by new onset muscle weakness, fatigue, pain, and muscular atrophy, manifests over 15 years after initial infection.²
- The anesthetic management of these patients may present unique challenges due to altered physiology and hypothesized sensitivity to anesthetic agents.
- Our review assesses the anesthetic considerations in PPS patients and highlights evidence gaps, focusing on the pathophysiology, clinical presentation, and anesthetic implications.

METHODS

- We conducted a literature review of published studies of PPS and anesthesia care.
- We sought to summarize (1) concerns for PPS patients having anesthesia; (2) reported outcomes; (3) gaps in the literature.

REFERENCES

¹ Bridgens R, Sturman S, Davidson C. Post-polio syndrome – polio's legacy. Clin Med. 2010;10(3):213-214.

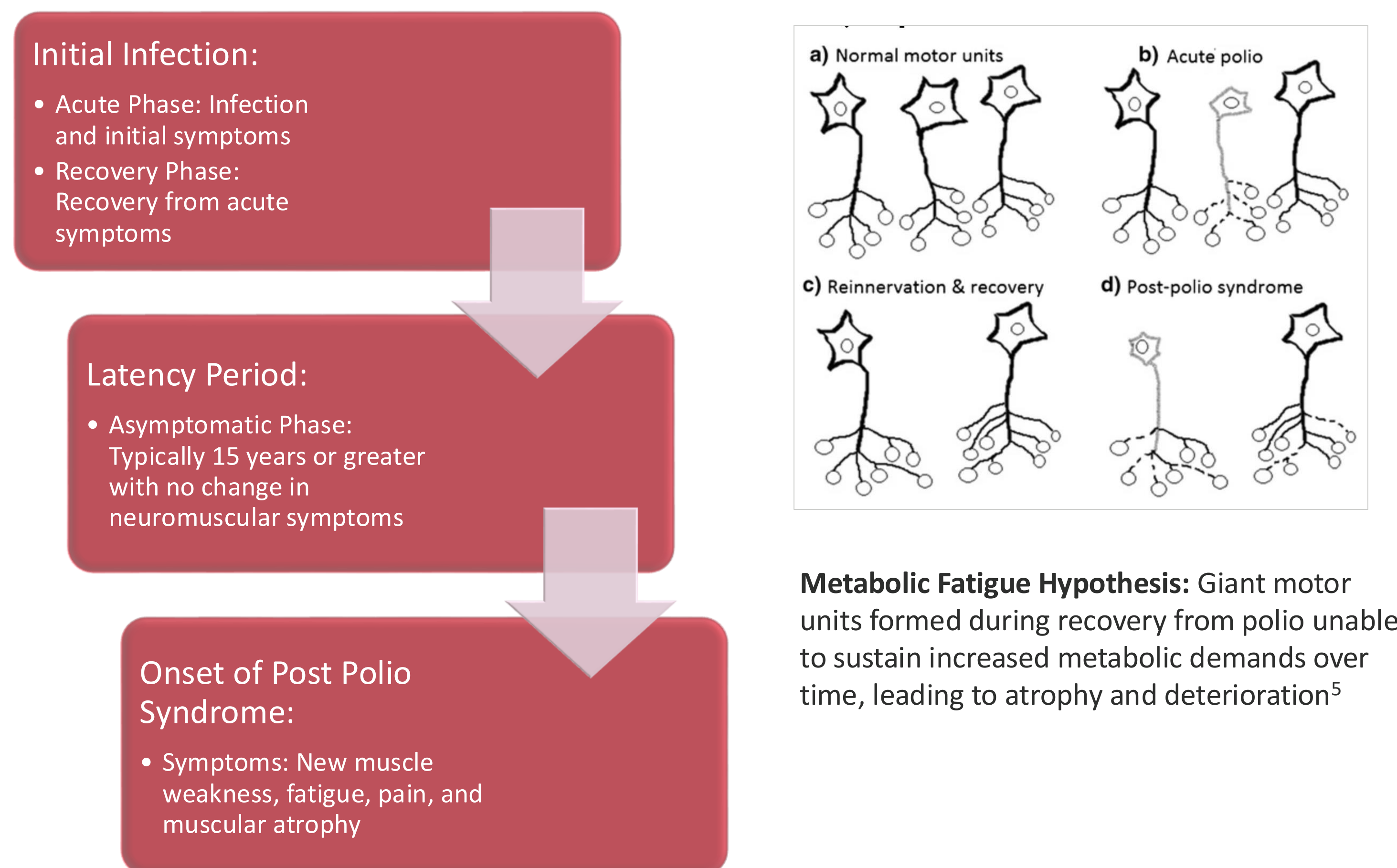
² Lambert DA, Giannouli E, Schmidt BJ, Wartier DC. Postpolio Syndrome and Anesthesia. Anesthesiology. 2005;103(3):638-644.

³ Bach JR, Tilton M. Pulmonary dysfunction and its management in post-polio patients. NeuroRehabilitation. 1997;8(2):139-153.

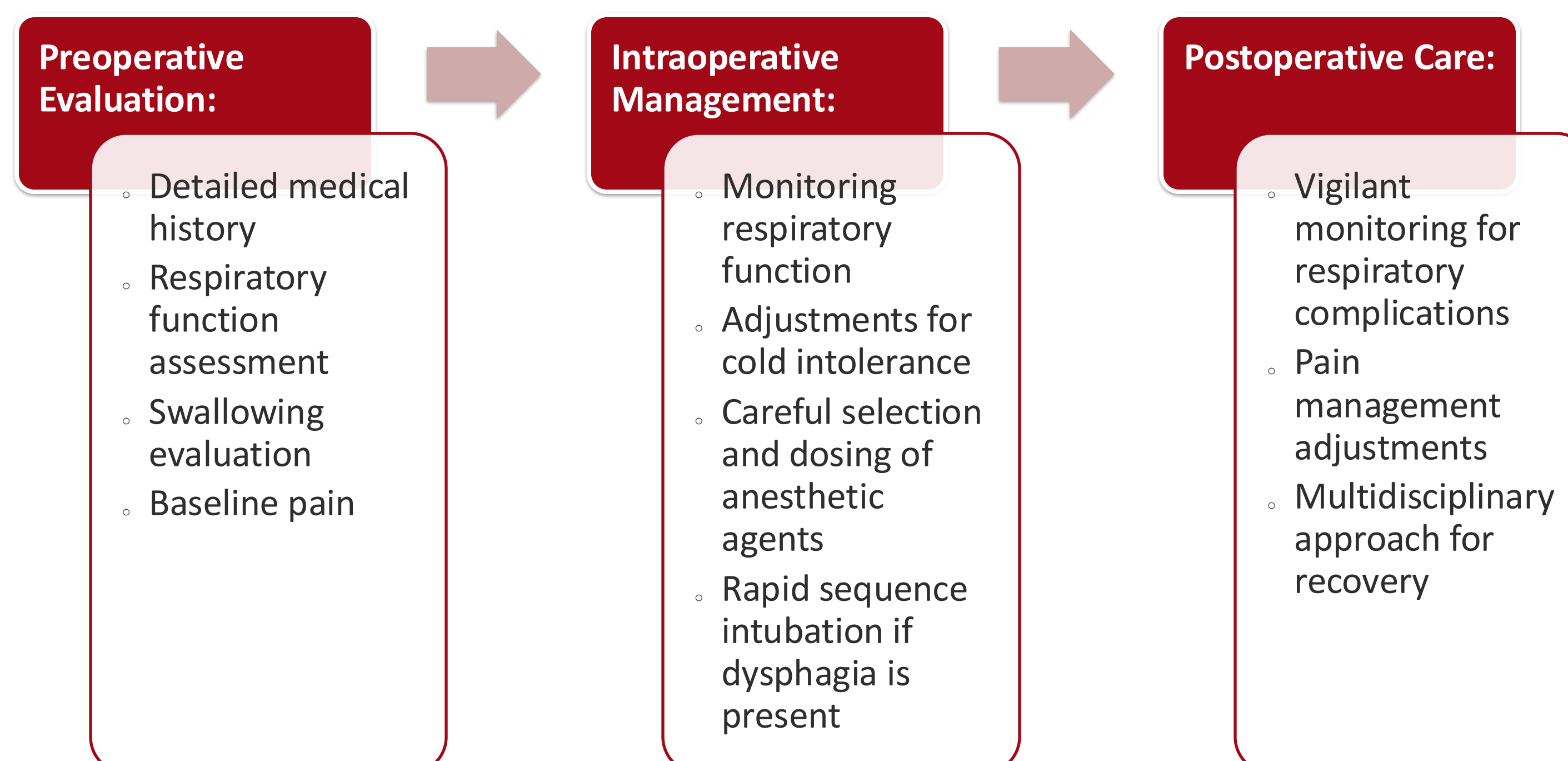
⁴ Van Alstine LW, Gunn PW, Schroeder DR, Hanson AC, Sorenson EJ, Martin DP. Anesthesia and Poliomyelitis: A Matched Cohort Study. Anesth Analg. 2016;122(6):1894.

⁵ Metabolic fatigue hypothesis figure reprinted with permission from Springer: Ny-Ying, and Thomas Edward Mcnalley. "Post-Polio Syndrome, Implications for Geriatric Care." Current Geriatrics Reports, vol. 6, no. 1, Feb. 2017, pp. 20-25.

Post Polio Syndrome Pathophysiology



Anesthetic Management Considerations for PPS Patients



RESULTS

- The literature review revealed several significant anesthetic considerations for PPS patients, including:
 - » Respiratory function impairment due to sleep-disordered breathing, hypoventilation, and reduced chest wall strength.³
 - » Dysphagia considerations including risks of aspiration and possible need for rapid sequence intubation.
 - » Cold intolerance and possible intraoperative hypothermia management.
 - » Unclear responses to muscle relaxants, opioids, and sedatives.
- Only one large observational study compares care of PPS patients with non-PPS patients.⁴
- Most studies were limited to case reports, highlighting a lack of large-scale studies to evaluate outcomes and establish evidence-based guidelines.

CONCLUSIONS

PPS patients may present unique anesthetic challenges that require careful preoperative assessment and a tailored anesthetic plan. Given the current evidence gaps, a multidisciplinary approach is recommended, focusing on respiratory assessment, neuromuscular function, and careful selection of anesthetic agents. Further research is essential to develop evidence-based guidelines and improve perioperative outcomes for this population.