

# HOSPITAL PHYSICIAN®

## NEUROLOGY BOARD REVIEW MANUAL

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## Neuromuscular Disorders Associated with Critical Illness

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Cover Illustration by May S. Cheney

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#### I. INTRODUCTION

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In 1984, Bolton and colleagues<sup>1</sup> first described a severe generalized polyneuropathy that develops acutely in critically ill patients. This polyneuropathy produces respiratory muscle weakness and ventilator dependence. This condition, *critical illness polyneuropathy* (CIP), was subsequently found in more than 50% of patients in an intensive care unit (ICU) who have had sepsis for more than 2 weeks.<sup>2</sup> For several years, CIP was thought to be the predominant cause of new weakness in the ICU. In 1990, however, 2 separate studies raised the possibility that persistence in the body of vecuronium bromide (a neuromuscular blocking agent) and its metabolites might contribute to CIP in some patients.<sup>3,4</sup>

At about the same time, a new problem was recognized as a cause of weakness in the ICU. Many patients had what appeared electrophysiologically to be a myopathic condition (muscle disease). Some studies reported that biopsies taken from patients with this condition were characterized by the selective loss of myosin filaments,<sup>5</sup> whereas other studies described an acute severe necrotizing myopathy.<sup>6</sup> Because both disorders are now usually considered variations of the same syndrome, they are collectively called *critical illness myopathy* (CIM); other names such as “acute quadriplegic myopathy” and “acute myopathy with selective loss of myosin filaments” have also been used. Although recognized later than CIP, some studies suggest that CIM may actually be more common than CIP.<sup>7</sup>

Today, both CIP and CIM are probably under-recognized in many critically ill patients. Research has