



## Effect of intrapulmonary percussive ventilation in a severely disabled patient with persistent pulmonary consolidation

**Wada N, Murayama K, Kaneko T, Kitazumi E.**

**Department of Pediatrics, National Rehabilitation Center for Children with Disabilities, Tokyo - JAPAN**

An intrapulmonary percussive ventilator (IPV) improves airway clearance and lung function, and is useful for wide variety of respiratory disorders, such as cystic fibrosis, chronic obstructive pulmonary disease, aspiration pneumonia, and neuromuscular diseases. However, there are few reports on IPV use in patients with severe neurological impairment, scoliosis and thoracic deformity. They have poor mobility of the rib cage and difficulty in sputum expectoration. The use of IPV significantly improved persistent consolidation shown by chest computed tomography (CT) in one of such patients. The patient was a 33-year-old woman with severe spastic quadriplegia and tracheostomy and she was dependent on mechanical ventilation because of chronic restrictive respiratory failure. After fever and mild hypoxemia for one day, chest CT revealed consolidation of the left lower lobe. An IPV-I ventilator was used for 15 min once a week, with a stroke frequency of 250-300 cycles/min and pressure of 22 PSI. Mechanical ventilation was withheld during the IPV therapy. Chest physiotherapy was also done. According to the worsening of the consolidation on chest CT, the frequency of IPV was changed to once a day at day 23 and then to twice a day. Chest CT at day 44 showed further improvement. In patients with severe motor and intellectual disabilities, it is sometimes difficult to control progressive deterioration of pulmonary function and persistent atelectasis even with tracheostomy, mechanical ventilation, and conventional physiotherapy. Our results indicate that IPV may improve respiratory function and the quality of life in such patients.

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