

# European Respiratory Society Annual Congress 2013

**Abstract Number:** 4238

**Publication Number:** P1374

**Abstract Group:** 9.2. Physiotherapists

**Keyword 1:** Chronic disease **Keyword 2:** Cough **Keyword 3:** Respiratory muscle

**Title:** Evaluation of assisted cough with air stacking in patients with tetraplegia

Mr. Rodrigo 27048 Torres-Castro hackrod@yahoo.com<sup>1,2</sup>, Mr. Roberto 27049 Vera kinerob@yahoo.com<sup>2</sup>, Mr. Gonzalo 27050 Monge gonzalomonge1@hotmail.com<sup>1</sup>, Ms. Carolina 27051 Suranyi carolinasuranyi@gmail.com<sup>1</sup>, Ms. Paulina 27052 Avilés paliaviles@gmail.com<sup>1</sup> and Dr. Jordi 27059 Vilaró jordi.gestos@gmail.com<sup>3</sup>. <sup>1</sup> Equipo De Rehabilitación Respiratoria, Clínica Los Coihues, Santiago, Chile ; <sup>2</sup> Escuela De Kinesiología, Universidad De Chile, Santiago, Chile and <sup>3</sup> Facultad De Ciencias De La Salud Blanquerna, Grupo De Investigación En Fisioterapia (GReFis), Universidad Ramon Llull, Barcelona, Spain .

**Body:** INTRODUCTION: A significant number of patients with tetraplegia require prolonged mechanical ventilation and use of tracheostomy. For an effective weaning, a thorough analysis of the ability to cough is required. The cough effectiveness is related to the peak cough flow (PCF). Lower PCF values has been described as ineffective and are associated with a greater risk of pulmonary infections. There are techniques to assist cough by increasing the inspiratory volume and the expiratory flow. The manual Air Stacking (AS) technique has been proven as effective in neuromuscular disease. OBJECTIVE: to assess cough efficacy using air stacking and manual compression in patients with tetraplegia with A ASIA Score. METHODS: 11 hospitalized patients with tetraplegia (A ASIA Score) were selected. Measures: PCF during four different interventions: spontaneous maximal expiratory effort (MEE); MEE while receiving abdominal compression (MEE+Abd); MEE after air stacking with a manual resuscitation bag (MEE+AS); and MEE with air stacking and compression (MEE+Add+AS). RESULTS: median age 33 years (16-56 years). The PCF during the different interventions was: MEE 156±53 L/min; MEE+Abd 235±113 L/min; MEE+AS 225±61 L/min, and MEE+Abd+AS 303±96 L/min. We observed PCF increase while applying combination techniques but only significant differences existed between PCF with MEE and MEE+Abd+AS (p=0.0001). CONCLUSION: According to our results, patients with spinal cord injury presented an ineffective cough constituting a risk factor for developing respiratory symptoms. The application of combined techniques (MEE+Abd+AS) can reach near normal PCF values. Those are low cost, simple and easy applied intervention.