INFLUENCE OF AIRWAY CLEARANCE TECHNIQUES ON GASTROESOPHAGEAL REFLUX IN INFANTS UNDER THE AGE OF ONE YEAR

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PUBLIC PHD DEFENCE FOR THE DEGREE OF
DOCTOR IN REHABILITATION SCIENCES AND PHYSIOTHERAPY

TUESDAY, SEPTEMBER 24TH 2024 AT 18:00
AUDITORIUM P. BROUWER ON THE CAMPUS JETTE VUB

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ABSTRACT OF THE RESEARCH

Traditionally, infants with respiratory conditions that cause mucus accumulation have been treated using postural drainage techniques combined with percussion and vibration. While these methods have been widely used, recent literature has raised significant concerns: postural drainage can increase intra-abdominal pressure, potentially inducing gastroesophageal reflux. This reflux, whether acidic or non-acidic, can exacerbate respiratory symptoms and complications. Consequently, this may necessitate additional respiratory physiotherapy, creating a potentially harmful cycle where the treatment intended to aid airway clearance unintentionally maintains mucus buildup.

The development of new airway clearance techniques for pediatric patients over the past decades represents a significant advancement in the treatment of respiratory conditions in infants. These techniques, including intrapulmonary percussive ventilation, prolonged slow expiration, and autogenic drainage with or without bouncing, have proven effective in draining and clearing mucus. However, until now, their impact on gastroesophageal reflux had not been thoroughly investigated.

In my doctoral research, I conducted three studies to evaluate the influence of these newer airway clearance techniques on both acid and non-acid gastroesophageal reflux in infants. This research aimed to close the existing gap in knowledge and provide crucial insights into whether these modern techniques could be safely implemented without inducing gastroesophageal reflux-related complications.

The findings suggest that intrapulmonary percussive ventilation, prolonged slow expiration, and autogenic drainage with or without bouncing can be safely used without increasing the risk of reflux-related complications, even in children who have already developed gastroesophageal reflux. This offers a more effective and safer approach to managing respiratory conditions in pediatric patients, reducing the risks associated with traditional methods. Furthermore, these findings emphasize the need to replace older techniques, such as percussion with head-down positioning, which have been shown to increase gastroesophageal reflux, with these newer, safer methods.

CURRICULUM VITAE

I am Laure Lievens, an enthusiastic physiotherapist with a passion for respiratory physiotherapy. My journey in physiotherapy began in 2014, and during my first internship in pediatrics, I discovered my passion for respiratory physiotherapy—a passion that has only grown stronger since then. Following this experience, I continued my education and graduated in 2019 with a Master's degree in Rehabilitation Sciences and Physiotherapy, specializing in internal conditions. After completing my education, I decided to pursue a PhD under the supervision of Prof. dr. Van Ginderdeuren, just as I did with my thesis. During this period, I worked part-time as a cystic fibrosis physiotherapist at UZ Gent, while also completing an additional Master's degree in pediatric physiotherapy. Upon obtaining this second Master's degree, I decided to combine my scientific research and hospital work with treating patients with respiratory issues in my own physiotherapy practice. Over time, my PhD project evolved into something I developed further largely in my free time, with the research findings and insights I gained directly enhancing my daily treatments.