

## Intima media thickness and diameter of carotid artery in healthy adolescents from Helena study: an ancillary study (preliminary results)

by

Lamotte C<sup>1,2</sup>, Iliescu C<sup>1</sup>, Beghin L<sup>1,3</sup>, González-Gross M<sup>4</sup>, Sjöström M<sup>5</sup>, Widhalm K<sup>6</sup>,  
Libersa C<sup>1</sup>, De Henauw S<sup>7</sup>, Gottrand F<sup>1,3</sup>

---

**Objectives:** To measure and study the common carotid intima media thickness (cIMT) and diameter (cD) in adolescents according to age, pubertal stage, gender, and to analyze their relations with anthropometric data and blood pressure.

**Methods:** We assessed by high resolution ultrasound the cIMT and cD of the common carotid artery in 319 boys and girls (aged 11-17) from the Helena study (Lille city) and their interacting factors using bivariate analysis. Body composition was assessed using Slaughter equations and electrical bioimpedance.

**Results:** The left cIMT and the right cD were higher than the opposite side ( $p < 10^{-4}$ ), and the cD was higher in boys than in girls ( $p < 10^{-4}$ ). cIMT was slightly higher in boys but not significantly. cIMT was correlated with cD ( $r = 0,15$ ;  $p < 0,008$ ) but neither with anthropometric factors (BMI, waist girth, fat free mass) nor with blood pressure. cIMT and cD were not affected by the age category and Tanner stage. cD was correlated with BMI ( $r = 0,21$ ;  $p < 10^{-4}$ ), waist/hip ratio ( $r = 0,23$ ;  $p < 10^{-4}$ ), fat free mass from Slaughter and from bioimpedance ( $r = 0,26$ ;  $r = 0,312$ ;  $p < 10^{-4}$ ) but not with blood pressure.

**Conclusion:** Our preliminary results suggest that anthropometric factors and body composition modulate common carotid artery diameter in healthy adolescents but not cIMT. Sex differences occur early in adolescence for arterial diameter.

---

<sup>1</sup> CIC 9301 CH&U-Inserm, Lille, France

<sup>2</sup> Department of Internal Medicine CHRU, Lille, France

<sup>3</sup> EA-3925, Lille 2 Law and Health University, Lille, France

<sup>4</sup> Facultad de Ciencias de la Actividad Física y del Deporte, Universidad Politécnica de Madrid, Madrid, Spain

<sup>5</sup> Karolinska Institutet, Huddinge, Sweden

<sup>6</sup> Department of Paediatrics, University of Vienna, Vienna, Austria

<sup>7</sup> Department of Public Health, Ghent University, Belgium

Correspondence: c-lamotte@chru-lille.fr