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## Ultrasound assessment of the intima and media layers on the carotid arteries in peri- and postmenopausal women

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**Purpose:** To measure the thickness of intima and media layers of carotid arteries of peri- and post-menopausal women using standard ultrasound equipment present in many Ob & Gyn departments.

**Patients and methods:** In this prospective observational study 135 post-menopausal and 23 peri-menopausal women were included. With a high-resolution linear ultrasound probe (used for breast imaging) the intima and media layers of the common carotid arteries in women attending our menopausal centre for routine care were measured. Triplicate measurements for each layer from both sides were obtained, and, for a subset of patients, repeatability was assessed. Patient age, history of arterial hypertension and possible hormone replacement therapy (HRT) were also recorded.

**Results:** Intima and media measurements were sufficiently reproducible. There were no statistical differences between the left and the right carotid arteries.

Intima thickness increased with age ( $r=0.34$ ,  $p<0.0001$ ), but was independent of menopause status and of the presence of hypertension or hormone treatment status.

Media thickness increased with age ( $r=0.47$ ,  $p<0.0001$ ) and was larger in postmenopausal as compared to perimenopausal women ( $p=0.0013$ ) as well as in women with hypertension ( $p=0.020$ ). Women who stopped HRT had thicker media than women continuing HRT ( $p=0.013$ ).

**Conclusion:** The thickness of the intima and media layers of the carotid artery can be easily and reliably measured using equipment present in many Ob&Gyn units. Patient age seems to be the most important determinant of vessel wall thickness, both for intima and media. Discontinuation of HRT and hypertension are correlated with increased media thickness in this cohort.

#### Literature:

Naessen T, Rodriguez-Macias K ; Menopausal estrogen therapy counteracts normal aging effects on intima thickness, media thickness and intima/media ratio in carotid and femoral arteries. An investigation using noninvasive high-frequency ultrasound. Atherosclerosis. 2006 Dec;189(2):387-92

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