

EP16.37 Ophthalmic artery Doppler performance for analysis of cerebrovascular reactivity in pregnant women undergoing to apnea.

Authors: *Cairo Guedes Junior, Welington U. Naves, Lara R. Felix, Beatriz R. Parreira, Angélica L. Debs Diniz*
Federal University of Uberlândia – UFU BRAZIL



Objective

The present study aimed to investigate whether apnea can modulates cerebrovascular reactivity by ophthalmic artery Doppler (OAD) in pregnant women without comorbities

Methods

Prospective experimental study that included 30 normal-risk pregnant women. The study was approved by the local ethics committee (65300621.2.0000.5152). OAD was performed by an expert physician at patients in supine position after 10 minutes of rest, using linear 10 MHz transducer. Doppler indices (DI) were calculated (time 1). Patient was instructed to start apnea and OAD indeces were calculated in the final of apnea (time 2) and after 3 minutes of stopping the apnea (time 3). The DI were: pulsatility and resistance Indexes (PI, RI), First and second systolic velocity peak (SVP1, P2), end diastolic velocity (EDV) and peak ratio (PR= P2/ SVP1). Anova test and Bonferroni correction were applied with $p < 0.05$.

Results

The average age of pregnant women was 27 years $\pm$ 5, with BMI 28 $\pm$ 4, gestational age of 28 weeks $\pm$ 5 weeks, with an average apnea of 15 sec $\pm$ 3,8.

Hyperperfusion and a drop in arterial impedance were observed at the end of the apnea period, with recovery of the arterial reaction pattern at time 3 . The average age of pregnant women was 27 years $\pm$ 5, gestational age of 28 weeks $\pm$ 5, apnea of 15 sec $\pm$ 3,8. Hyperperfusion and a drop in arterial impedance were observed at the end of the apnea period, with recovery of the arterial reaction pattern at time 3 . The PI, RI, PR and SVP1 indices demonstrated significant differences in the analysis of the three times (Table 1).

Table 1: Average and stard deviation of OAD indices in gestation rest (Time 1), in the final of apnea (Time 2) and after 3 minutes of stopping the apnea (Time 3).

	Time 1	Time 2	Time 3	p
PI	1.95 +/-0.05 a	1.80 +/-0.05 b	1.89 +/-0.05 c	ab<0.002/ac0.26 / bc 0.14
RI	0.84 +/-0.01 a	0.81 +/-0.01 b	0.83 +/-0.01 c	ab<0.003/ ac 0.659 bc 0.10
SVP1	26.66 +/-1.10	33.91 +/-1.49	16.84 +/-1.23	<0.001
P2	16.94 +/-0.96	17.47 +/-1.21	16.84 +/-1.23	1.000
EDV	6.11 +/-0.48	6.50 +/-0.51	6.37 +/-0.57	1.000
PR	0.45 +/-0.01 a	0.50 +/-0.02 b	0.45 +/-0.02 c	ab<0.00/ac1.00/bc 0.03

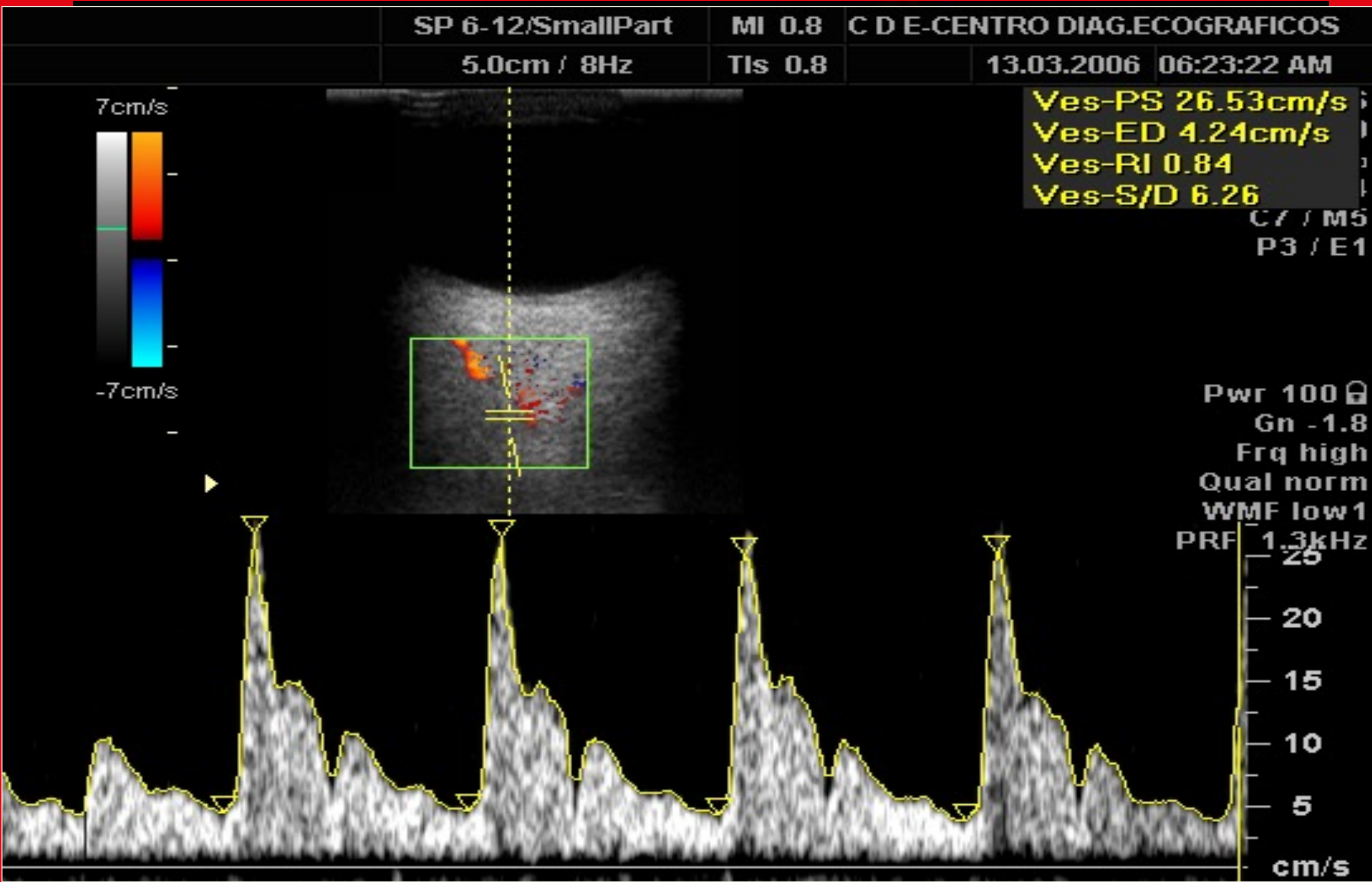


Figure 1. Ophthalmic artery Dopplervelocimetry

Conclusion

There were significant changes in OAD indices in pregnant women at the end of the apnea period, with signs of hyperperfusion and drop in OA impedance represented by increase in SVP1, EDV and a decrease in PR, PI and RI. So apnea can modulate arterial cerebrovascular reactivity.