Obstétrique - Divers

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Optic nerve sheath diameter in severe pre-eclampsia versus healthy pregnant women: a prospective, observational study

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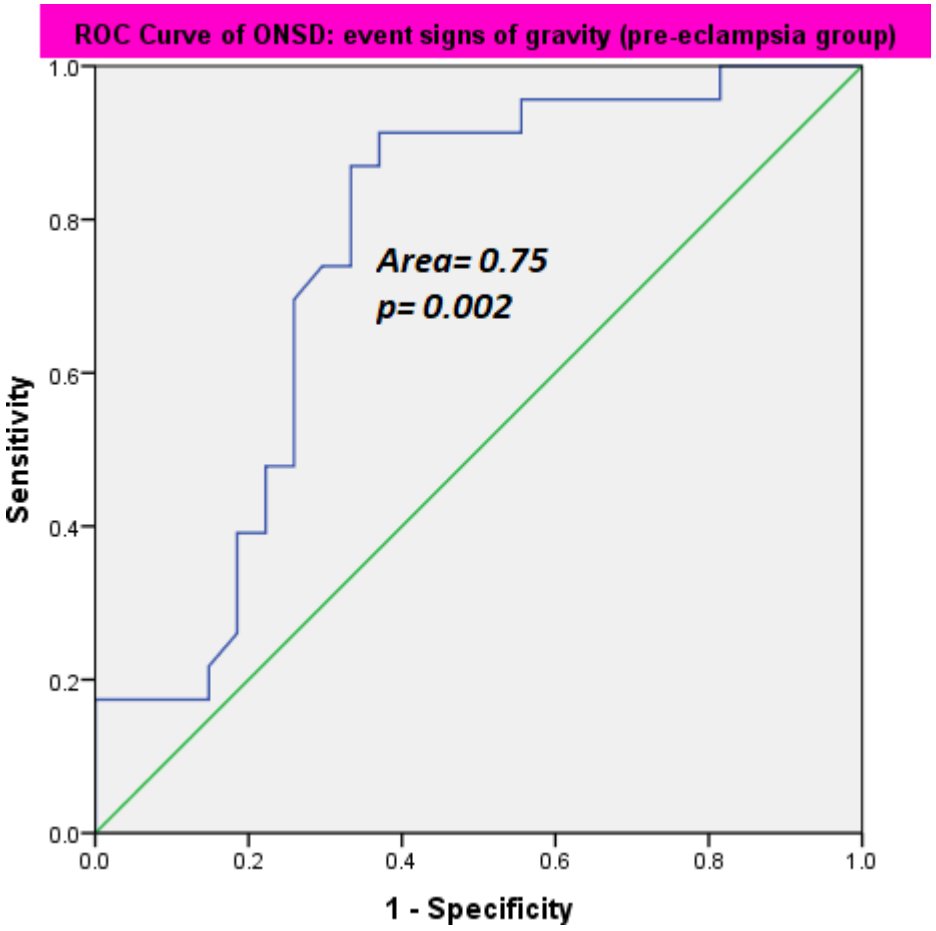
Position du problème et objectif(s) de l'étude:
Severe pre-eclampsia is associated with an elevation of intracranial pressure (ICP). Optic nerve sheath diameter (ONSD) is a non-invasive surrogate of invasive ICP measurement. ONSD superior to 5.8 mm is usually diagnostic of raised ICP. In this study, we aimed to compare the ultra-sound measured ONSD in severe pre-eclamptic parturient to a group of healthy pregnant women, and its relationship to the severity of this disease.

Matériel et méthodes:
One hundred consenting women were enrolled in a single site prospective and observational study. Fifty patients with severe pre-eclampsia(CNGOF criteria) were compared to 50 uncomplicated pregnant controls. All of them met the inclusion criteria of an age older than 18 years and 28 weeks or further gestation. We performed ONSD measurements using a 7.5 MHZ ultrasound linear probe, with a mechanical index inferior to 0.3 as recommended. For each optic nerve, two measurements were made in two different planes: transversal then sagittal. We collected demographic, anthropometric, biologicaland relevant pregnancy data. Statistical analysis was performed with SPSS 22.0 software. Categorical variables were compared using the X2 test. Continuous variables were presented as mean ± standard deviation, discrete variables were presented as medians and compared using Mann-Whitney's U test. A p-value inferior to 0.05 was considered as significant.

Résultats & Discussion:
Both groups were comparable for demographic, anthropometric, and biological data. At the time of the ocular sonography, age of pregnancy was significantly higher in the healthy pregnant women group; 38± 2 gestational weeks versus 33± 4 for the pre-eclampsia group, p inferior to 0.001. The median ONSD was significantly higher in patients with severe pre-eclampsia (6.3mm [4.4; 8.6]) compared to controls (5.4mm [4.6; 7.9])(p inferior to 0.001). Among sever pre-eclampsia group, 30 patients had ONSD superior to 5.8mm (60%) versus only 5 among healthy pregnancies group (10%), p inferior to 0.001. The results displayed on the ROC curve indicate a notable correlation between ONSD and the appearance of severeand critical symptoms in pre-eclampsia, with an area under the curve measuring 0.75 and a p-value of
0.002. By using a cut-off value of 5.75mm, the sensitivity was found to be 91%, while the specificity was 63% (as shown in the Figure).

Conclusion:
Ultra sound measurement ONSD is a trustworthy tool to predict both severity and gravity of pre-eclampsia. Further studies with larger samples are needed to confirm our findings. Assessment of ONSD using ultra sound seems to be reliable, rapid, non invasive, reproducible, and could be a good routine to monitor severity of pre-eclampsia with cautions regarding a mechanical index of the ultra sound probe.



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