

## Ultrasonographic evaluation of optic nerve sheath diameter

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### Objective

(1) to describe the distribution of optic nerve sheath diameter (ONSD) in pregnant women at usual risk; (2) to describe the association of demographic, clinical and obstetric factors and ONSD and (3) to spread ONSD as a propaedeutic method to evaluate intracranial hypertension (ICH) during pregnancy.

### Methods

Cross-sectional and descriptive study. The sample consisted of healthy pregnant women undergoing prenatal follow-up who underwent routine ultrasound examination or who underwent full term hospitalization in order to induce labor. Patients who underwent previous eye surgeries; patients with morphological, functional, infectious and sequelar eye changes or metabolic changes that cause edema, as well as those who developed hypertensive syndrome during pregnancy were excluded. The study was developed from March 2018 to December 2019 at Maternity School of Federal University of Rio de Janeiro. The sample consisted of healthy pregnant women undergoing prenatal follow-up who underwent routine ultrasound examination or who underwent full term hospitalization in order to induce labor. A questionnaire was carried out to assess secondary variables such as: Maternal age, gestational age, parity, race / skin color. Blood pressure was also measured and mean arterial pressure (MAP) was calculated. Transbulbar ultrasound examinations were performed with three ONSD measures in each eye. The distribution of data were analysed by visual and subjective methods and we calculated median, average and percentis of each eye separately.

### Results

243 patients were examined with a final sample of 171 patients. In the end of the study, 1458 measurements of ONSD were performed in the total sample and 1026 measurements in the final sample (3 measurements in each eye, totaling 6 measurements for each patient). The ONSD averages for the right and left eyes in each group of patients were then calculated (total sample, final sample, excluded and loss to follow-up). The distribution of these values in the final sample had a normal Gaussian curve. MDNO values ranged between 0.36 cm and 0.52 cm in the right eye, with an average of 0.456 cm. In the left eye, the measurements varied between 0.36 cm and 0.55 cm, with an average of 0.466 cm. There was a statistically significant difference between the average measurements of two eyes in all the samples ( $p < 0,05$ ). The medians of the MDNO values of the eyes in the final sample were 0.46 cm on the right and 0.47 cm on the left. The intraclass correlation coefficient between the right and left eyes was low (0.66), with a tendency for dispersion in the Altman Bland and survival agreement plot plots. A bivariate linear regression analysis model was performed and none of the secondary variables studied had a statistically significant relationship with ONSD ( $p \leq 0.05$ ).

### Conclusion

The distribution of the ONSD values in the final sample was gaussian normal, with the average of the ONSD being 0.456 cm on the right eye and 0.466 cm on the left eye. The medians of the ONSD of the final sample were 0.46 cm on the right and 0.47 cm on the left. The variables gestational age, maternal age, MAP and parity were not associated with the ONSD and ONSD was broadcast as a propaedeutical method to evaluate ICH in pregnant women.