Ultrasonographic evidences of the association between CCSVI and SM: an observational study.

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Introduction: An anomalous cerebro-spinal venous outflow, caused by anomalies present on the internal jugular vein and the Azygos vein(named chronic cerebro-spinal venous insufficiency or CCSVI) has been associated to the Multiple Sclerosisas one of its possible causes. The aim of this study is to report our experience on the hemodynamic and morphologic evidences of the cerebro-spinal venous outflow in patients affected by Multiple Sclerosis which have been studied with extra-cranial and trans-cranial venous eco-color-doppler in conformity with Zamboni'sprotocol.

Materials and Methods: At our Institute we have studied 258 patients (161 females and 97 males) affected by Multiple Sclerosiswith extra-cranial and trans-cranial venous eco-color-doppler. This exam has been made in conformity with Zamboni'sprotocol. In fact the patients have been studied in supine and seated position withan Esaote MyLab Vinco dedicated equipment provided with a linear multi-frequency (3,5-10 MHz) and a sectorial (2-3,5 MHz) probe. We have studied the internal jugular veins, the vertebral veins ant the deep cerebral veins. In each of these veins we have evaluated the blood flow (present vs blocked), the presence of reflux, the change of the internal jugular vein's caliber at the supine-seated shift measured in J2 (physiologic or >1 vs anti-physiologic or <=1), endovascular anomalies (septa, annulus, malformed valves, inverted strips, sclero-fibrous wall) in the internal jugular vein determining an hemodynamic effect (present vs absent), the presence of reflux in the deep cerebral veins (present vs absent).The evidence of at least two positive hemodynamic criteria among those provided in the protocol, has been considered diagnostic for CCSVI.

Results: 220 patients of the 258 studied (85,3%) turned out to be affected by CCSVI. The anomalies detected have been blocked flow in the internal jugular vein (44,2% on the right side and 57,4% on the left side) and in the vertebral veins (46,1% on the right side and 57,7% on the left side), the presence of reflux in the internal jugular vein (3,5%

on the right side and 7,7% on the left side) and in the vertebral veins (3% on the right side and 2,3% on the left side), endovascular anomalies (septa, annulus, malformed valves, stiff strips, sclera-fibrous wall) in the internal jugular vein determining an hemodynamic effect (25,2% on the right side and 16,3% on the left side). The Δ CSA resulted negative in 3,9% of the cases on the right side and in 2,3% of the cases on the left side. With the trans-cranial eco-color-doppler we documented the presence of reflux in the deep cerebral veins in 7,7% of the cases.

Discussion and Conclusions: We have studied 258 patients (161 females and 97 males) affected by Multiple Sclerosiswith extra-cranial and trans-cranial venous eco-color-doppler made in conformity with Zamboni'sprotocol. 220 of the 258 patients studied (85,3%) turned out to be affected by CCSVI demonstrating that there is anhigh association between these two pathologic entities. To the best of our knowledge the result of our study goes with the result of other recently published studies.

References:

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