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C0346 - INTRACRANIAL DYNAMICS IN THE SUPINE AND STANDING POSITIONS: DOES ANYTHING MORE CHANGE THAN THE MEAN INTRACRANIAL PRESSURE?

P. López Gómez, J. Esteban García, G. García Catalán, C. Bucheli Peñafiel, I. Valduvieto Juaristi, I. Pinto Rafael and R. Martín Láez

Hospital Universitario Marqués de Valdecilla, Cantabria, Spain.

Resumen

Objectives: Little is known about variation in dynamics of intracranial pressure (ICP) when non-critically ill patients change from supine to standing position. Literature is scarce, most of it limited to modification of absolute ICP values. The aim of this study is to determine the variation of parameters extracted from ICP monitoring during changes from supine to standing position.

Methods: We retrospectively reviewed patients that underwent computerized ICP monitoring in whom at least 30 minutes of data before and after a postural change from supine to standing was available. Non-shunted patients with normal quantitative and qualitative nocturnal ICP recording were selected for analyses. Raw ICP data was automatically analyzed using ICP Digital Tools[®], extracting the following parameters for both body positions: mean ICP, dispersion, cerebral pulse pressure (PP), systolic raising coefficient (dPdt), pressure-pulse correlation coefficient (RAP), partial pressure-pulse regression coefficient (RPPC) and closing hydrostatic pressure (P_0). SPSS 21 was used for statistical analysis, considering significance at $p < 0.05$.

Results: Of 308 patients studied, 217 have monitoring during positional changes. In 31 of those cases, overnight ICP recording was considered to be quantitative and qualitatively normal. In those subjects mean ICP decreased from 3.66 ± 3.17 mmHg in supine to -5.62 ± 3.63 mmHg in standing ($p < 0.0001$) and P_0 from -1.74 ± 13.60 to -15.83 ± 10.15 mmHg ($p < 0.0001$). Dispersion increased from 1.79 ± 0.94 to 2.20 ± 0.98 mmHg ($p = 0.008$), PP from 2.88 ± 0.93 to 3.58 ± 1.24 mmHg ($p < 0.0001$) and dPdt from 15.15 ± 6.64 to 17.79 ± 7.17 mmHg/s ($p = 0.006$). No statistically significant changes were detected in RAP nor in RPPC.

Conclusions: ICP variations during positional changes are not limited to mean ICP decrease, as P_0 decreases as well. Oppositely, ICP dispersion, PP and dPdt rise significantly.