P02-154 - **INTRACEBRAL FUNCTIONAL (LORETA) CONNECTIVITY DURING ATTENTION TO BODILY AND MENTAL PROCESSES AND RESTING**

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Objectives: Attention is hypothesized to increase the brain´s functional connectivity measured as EEG coherence between brain areas. Is this true for different types of attention compared to no-task resting?

Methods: In 25 healthy, meditation-naïve, right-handed, male students 58-channel EEG was recorded during three conditions of 5 minutes each with closed eyes in randomized order: (1) resting [3 runs], (2) mental arithmetic [2 runs], and (3) breath counting, a meditation initiation technique [2 runs]. For the 8 EEG frequency bands, the artifacted EEG was recomputed into sLORETA intracerebral current densities. To avoid localization ambiguities, we computed EEG coherence between sLORETA areas. To avoid effects of volume conduction, we computed intracerebral ´lagged coherence´ connectivity between sLORETA current densities in 19 areas. Averaged resting runs were compared to those breath counting and arithmetic runs of which participants post-hoc reported that their concentration was best.

Results: Paired t-tests between conditions yielded differences of coherence at $p< 0.1$ (corrected for multiple testing) for 5 EEG frequency bands (delta, theta, alpha1, alpha2, beta3) [number of connections in brackets]: coherence was lower in breath counting than arithmetic (delta, beta3 [1,1]). Coherence was lower in resting than arithmetic (alpha2 [1]), but higher in resting than breath counting (theta, alpha1, alpha2, beta3 [2,1,1,1]).

Conclusions: Attention to breath counting showed lowest, to arithmetic highest demands on intracerebral functional connectivity. Breath counting and mental arithmetic induce mental states whose inter-area connectivity differs in opposite directions from resting. The results do not support a global hypothesis of increased coherence during attention.

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