**Negative correlation between rs-FC of the frontal pole and risk-seeking behavior in young males**

Yacila I. Deza Araujoa, Lydia Hellrunga, Nils B. Kroemerab,c, Stephan Nebea, Michael N. Smolkaa.

aDepartment of Psychiatry and Neuroimaging Center, Technische Universität Dresden, Dresden, Germany; bPsychiatry Department, Yale University, New Haven, CT, USA; cJohn B. Pierce Laboratory, New Haven, CT, USA

**Background**

The late protracted pruning of the PFC and the stronger activation of maturing reward circuits might encourage impulsivity and risk-seeking behaviors and lead to poor decision-making during adolescence and young adulthood123. Here, we explored the relationship between value-based decision-making (VBDM) and resting-state functional connectivity (RSFC) in a big sample of young males.

**Methods**

RS data from 178, 18 y.o, healthy men were analyzed with the FSL Library. MELODIC was used to identify 12 networks. Dual regression was carried out in order to produce subject-specific maps and time courses of every network. FSLNets v0.6. was used for modelling the networks’ time series. Six RSNs were selected for single-network analysis because of their involvement in decision-making and related processes45 (2 DMNs, 2 fronto-parietal, cognitive control, basal ganglia). Finally, FSL-randomise, with 10 000 permutations was used to test voxel-wise the relationship between each network and the VBDM scores on a group level.

**Results**

The hierarchical clustering showed the association between networks on a group level. Single-network results were identified using TFCE, (Bonferroni corrected for multiple comparisons). A cluster located on the rostrolateral PFC (x=-28, y = 60, z = 12; \( p_{\text{FWE}} < 0.006 \) Bonferroni corrected for multiple comparisons) exhibited a negative correlation with increasing risk-seeking scores.

**Conclusions**

The hierarchical clustering analysis endorsed our network selection and showed a consistent association of networks with similar functions. The single-network analysis highlighted the role of the rostrolateral PFC in higher-order cognitive functions and processing of internal states6. Additionally, the activation of this structure under resting conditions may be similar to its activation with a low-demand cognitive task. Our results suggest that less engagement of this structure may underlie risk-seeking behavior in young subjects.

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