Resting state connectivity assessed in the acute aftermath of trauma predicts future posttraumatic and depressive symptoms

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Despite the high lifetime prevalence (50-90%) of trauma exposure, there is significant individual variability in the development of long-term psychiatric outcomes such as posttraumatic stress disorder (PTSD) and depression. Identifying neural signatures of PTSD susceptibility may be useful for developing early detection tools to optimize acute clinical interventions. To that end, we utilized functional magnetic resonance imaging to investigate resting-state networks (RSNs) of recently traumatized (within 2-weeks) individuals (n = 109) as part of the ongoing AURORA study. We assessed the relationship between 3-month PTSD symptom severity and five acutely measured a priori RSNs: the default mode network (DMN), salience network, left and right central executive network, and an arousal network (AN) that comprised the amygdala, hippocampus, and brainstem. DMN connectivity to the inferior temporal gyrus (ITG) was positively related to future PTSD symptoms while AN connectivity to the dorsolateral prefrontal cortex was inversely related to future PTSD symptoms (all p < 0.001, corrected). These patterns were also associated with 3-month depression symptoms. The present findings suggest assessments of RSNs in the acute aftermath of trauma may capture susceptibility to general posttraumatic dysfunction and may be a promising neural marker of debilitating posttraumatic outcomes.