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The neural correlates of deficits in fear expression processing and response reversal in children with psychopathic tendencies: Early fMRI data

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Previous work has shown deficits in fear recognition and response reversal in children and adults with psychopathic tendencies. These data have been used to support suggestions of amygdala and ventrolateral prefrontal cortex dysfunction in psychopathy (Blair et al., 2005). However, direct tests of neural activity within these regions during the performance of these tasks in children with psychopathic tendencies have not been conducted. In the present study, 10 children with psychopathic tendencies (as indexed by both the Antisocial Personality Screening Device and the Psychopathy Checklist – Youth Version) and 10 age, gender and IQ matched comparison children performed both fear and anger expression processing and response reversal paradigms as event related fMRI studies. Amygdala responses to fearful expressions in the children with psychopathic tendencies were reduced relative to comparison children. With respect to response reversal, rather than observing our predicted reduction in ventrolateral prefrontal cortex activation during the response to reversal errors, we found instead a reduced modulation of the amygdala and medial orbital frontal cortex response following the receipt of punishment. These data will be discussed with reference to models of the development of psychopathy.