states subjects had increased activity in the left medial prefrontal cortex, and bilateral primary visual cortex along with decreased activity in the bilateral temporoparietal cortex (right more decreased than left; all results p < 0.001 omnibus). Directly comparing the two emotions revealed that anger was associated with relatively more midline septum, right anterior temporal, and right medial prefrontal activity, and anxiety corresponded to relatively more activity in the right posterior central gyrus. PET images of rCBF in healthy controls during self-induced transient emotional states demonstrated changes in specific brain regions. Such studies can augment information from disease states and begin to outline the functional neuroratomy of emotions.

94. RISPERIDONE IN THE TREATMENT OF CHILDREN AND ADOLESCENTS WITH TOUrette’S DISORDER

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Tourette’s disorder is a common disorder in children and adolescents. In addition to the motor and vocal tics, it usually has comorbid conditions of obsessive-compulsive disorder, attention deficit disorder, and, at times, psychosis. Although haloperidol has been the treatment of choice, its use in children and adolescents is not optimal, due to the emotional dullness, impaired learning, extrapyramidal symptoms, and the risk for tardive dyskinesia. Risperidone, an atypical antipsychotic, may be an alternative treatment for this disorder. The purpose of the study was to determine if risperidone is effective in the treatment of children and adolescents with Tourette’s disorder. Researchers at the University of Florida Health Science Center conducted a retrospective study of the medical records of children and adolescents who were diagnosed with Tourette’s disorder and treated with risperidone. Five children and adolescents were identified. Risperidone appears to be effective in the treatment of Tourette’s disorder in children and adolescents, with improvement in tics, impulsivity, and attentional problems. Average dose was 6 mg/day. The most common side effect was weight gain. The results suggest that risperidone might represent an alternative for the treatment of Tourette’s disorder in children and adolescents who failed to respond or developed untoward side effects with the use of haloperidol. Risperidone would be a preferable alternative if the lower risk of tardive dyskinesia is confirmed. Further studies are recommended.

95. A COMPUTATIONAL MODEL OF THE EFFECTS OF LOCUS COERULEUS NEUROMODULATION ON ATTENTION

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A computational model is proposed that accounts for the relationship that has been observed between patterns of tonic and phasic locus coeruleus (LC) activity, and quantitative measures of behavioral performance during a vigilance task. Aston-Jones et al (1994) have found that during periods of increased LC tonic discharge, monkeys make greater numbers of false alarms, while during periods of moderate LC discharge, phasic bursts of LC activity are observed following target stimuli, and there is a reduction of false alarms to nontargets. The model shows how this relationship between patterns of LC firing and behavioral performance can be explained by changes in electronic coupling within LC. Specifically, it demonstrates that an increase in electronic coupling results in a more synchronous (i.e., phasic) pattern of firing, which is triggered by target but not distractor stimuli, and which is also associated with a lower spontaneous (i.e., tonic) firing rate. This pattern of LC response results in tighter coupling of neocortical NE release to target stimuli, which in turn improves task performance (a reduction in false alarms without an increase in response latency to targets). Thus, the model provides a neurobiologically realistic account of the influence of LC and NE on performance in a cognitive task, and suggests a specific role for biological mechanisms—electronic coupling within LC, and the neuromodulatory influences of NE—on selective attention. Furthermore, it sets the stage for subsequent studies of the role that noradrenergic disturbances may play in cognitive deficits observed in psychopathology.

96. STABILITY OF THE ACOUSTIC STARTLE REFLEX: AMPLITUDE VS AREA MEASURES

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Baseline startle amplitude, as well as PPI, the ability of a weak prestimulus to decrease the amplitude of the startle reflex are abnormal in a number of neuropsychiatric syndromes. These findings have resulted in active research utilizing ASR as a critical dependent measure. This report compares peak amplitude to area under the curve (AUC) measurements of ASR. Nine subjects with no personal history of psychiatric disorder, substance abuse, or major medical disorder or family history of schizophrenia were tested three times, 1 week apart. Testing was as previously reported (Schwarzkopf et al 1993). Briefly, subjects were exposed to 5 minutes of 70 db background noise followed by four types of startle stimuli: pulse alone (PA, 116 dB), and PA preceded by inhibitory preculses of 75 dB (PP75-PA), 60 dB (PP60-PA), and 60 dB (PP50-PA). Peak above baseline and AUC variables were measured for each of the trial types for the entire session and for each block (1st, 2nd, 3rd of testing). PPI was calculated for each of the inhibitory trials (PP75, PP80, PP85). Intra-class correlation coefficients (ICC) were calculated for all measures. Results indicate that baseline startle reactivity (response to PA) can be reliably measured using either the peak amplitude or AUC approach (all ICCs > 0.85). This was true for average ASR (entire session) and for each block. In contrast, reliabilities for PPI were enhanced using the peak amplitude approach (peak ICCs .67, .90, .95, AUC ICCs: .37, .54, .94). Further, PPI reliability was adequate when examined by individual block, as opposed to the baseline startle findings. PPI reliability showed a strong tendency for increased stability over the session. Results indicate a relative superiority of peak amplitude measures compared to the area measures utilized. These findings also have implications regarding the session length needed for stable PPI assessment. (Supported by MH00859.)