

ORAL PRESENTATION

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Neurotransmitter patterns in patients with adolescent idiopathic scoliosis (AIS)

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Background

Central nervous system function is dependent upon neurotransmitters to properly integrate midbrain and cortical function. Central nervous system dysfunction is thought to be a primary driver of AIS progression.

Purpose

The goal of this study was to observe and analyze any patterns of imbalance in neurotransmitter status in patients with AIS.

Methods

The charts of 31 AIS patients from the same multidisciplinary medical center, ages 11-18, were reviewed and compared to a sampling of 31 patients without a history of scoliosis. Testing consisted of a urinalysis panel, analyzing 12 common neurotransmitters.

Results

Review of the completed urinalyses revealed a trend towards elevated histamine, elevated norepinephrine and decreased serotonin in the AIS patients as compared to non-scoliotics. Since these neurotransmitters are typically expressed in specific cortical areas, this pattern of imbalance may manifest as a functional hemisphericity, causing asymmetrical efferent responses to peripheral, afferent muscular inputs, and altering firing thresholds in their respective pathways.

Conclusions and discussion

In the current sampling of patients with AIS, a trend toward specific neurotransmitter imbalances was observed. These imbalances may help shed light on the often-

observed somatosensory dyscoordination seen in this patient population.

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