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POSTER 22

PATTERNS OF BRAIN GROWTH IN ONE FGFR2 MOUSE MODEL FOR APERT SYNDROME

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Apert syndrome is a disorder associated with craniosynostosis resulting from one of two mutations in Fibroblast Growth Factor Receptor 2 (FGFR2). Individuals with Apert syndrome demonstrate brain dysmorphology, often associated with cognitive deficits. In this study, micro magnetic resonance images of the brain of $FGFR2^{+/P253R}$ mice and their wildtype littermates were acquired at two ages, P0 (newborn) and P2 (two days old). Fifteen landmarks on the brain surface were collected to compare growth patterns in the morphological phenotypes of the brain. Patterns of growth between P0 and P2 were defined for both the mutant and wildtype mice. These growth patterns were then compared between the mutant and wildtype groups. In general, mice with the $FGFR2^{+/P253R}$ mutation demonstrate a greater magnitude of growth of the brain compared to wildtype littermates between P0 and P2. Differences in growth between mutants and wildtypes are particularly evident in the width of the cerebrum, while growth of the cerebellum is more similar in the two groups of mice. This differential growth is similar to brain dysmorphologies observed in individuals with Apert syndrome and may underlie the cognitive deficits associated with this disorder.