

Characteristics of patients entering a study of homocystinuria due to cystathionine beta-synthase deficiency (HCU)

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BACKGROUND: HCU is the major genetic disorder of sulfur metabolism, with abnormalities in the visual, skeletal, vascular and central nervous systems. Elevated plasma levels of total homocysteine (tHcy) are implicated in the pathophysiology. Study CBS-HCY-NHS-01 is a comprehensive, longitudinal, natural history study in the US, UK and Ireland documenting the clinical course of patients with HCU on current therapy. Data will allow for the development of standardized clinical outcome parameters and inform statistical analyses for future interventional studies.

METHODS: Approximately 100 subjects, ages 5-65, with HCU confirmed by genetic analysis will be assessed every six months over a 3-year period. We analyzed the baseline characteristics of 34 patients enrolled to date, including demographics, medical and family histories, medications, baseline tHcy levels, ophthalmologic findings and dietary information.

RESULTS: The mean (range) values for demographics were: age 23.6 y (7-53); weight 66.5 kg (25-138), height 165.9 cm (126.5 -200.2); BMI 23.1 kg/m² (15 -49.5); plasma tHcy 25 micromole/L (12-361). Of the patients for whom data are available: 17/34 (50%) were female, 17 were male; 20/29 (69%) were diagnosed as newborns; 16/25 (64%) had no family history of HCU and 9 (36%) did. No patient reported a history of a thrombotic event or a psychotic episode and 15/27 (55.6%) reported ophthalmologic issues (12 myopia, 5 cataracts, 3 ectopia lentis). All subjects with available data were on a protein restricted diet that included medical formula, 18/27 (66.7%) were taking betaine and 17/27 (63%) were taking B vitamins and/or folate.

DISCUSSION: These data indicate that the population of patients enrolling into the ongoing study is similar to previously described cohorts of patients with HCU and is representative of the current HCU patient population. Extrapolation of our findings to the global population will inform future studies of potential HCU interventions.