Cerebrospinal Fluid Research

Poster Presentation

The use of electronic devices to cue self-catheterization for adolescents with spina bifida

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Adolescents with histories of myelomeningocele and hydrocephalus (MMH) frequently present with cognitive deficits in areas of executive functioning (EF) thought to be central to the completion of activities of daily living (ADL), particularly ADL's with high initiation and prospective memory requirements such as self-catheterization (SC). This study was designed to determine if auditory cueing provided by an electronic device could be used to help adolescents remember to perform SC without parental prompting. This initial pilot study utilized a single-subject 5-week design with an ABCBC intervention schedule. Data were collected for a 13-year old female subject with MMH (L4), average Verbal IQ, documented executive dysfunction, an adequate continence plan, and periodic incidents of urinary incontinence. Following a week of baseline data collection (condition A), the parent was provided with an electronic cueing device (condition B) that provided the parent with auditory cueing throughout the day (excluding school hours) to assess whether the subject had initiated SC at the scheduled times. During condition C, the subject was provided with a cueing device and was presented with cues to initiate SC 30-minutes prior to parent assessment of catheterization status. The subject required 3 parental reminders to complete SC during the week of baseline data collection, and an average of 1.5 parental reminders per week during conditions B and C. Across conditions, parental reminders to perform SC occurred far more frequently on the weekends (15% of scheduled catheterization events; 6/40) compared to weekdays/schooldays (4% of scheduled catheterization events; 3/75). This pilot data provides preliminary support for future research in electronic cueing to initiate SC, particularly during days of the week when routine environmental cues to perform SC (e.g., academic schedules) are less available to adolescents with MMH.