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Learning efficiency in children with myelomeningocele and shunted hydrocephalus

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Background

Limited evidence exists regarding the efficiency with which children with MM/SH are able to learn information. This report describes initial data related to components of learning in children with MM/SH.

Materials and Methods

13 children with MM/SH and 8 age-matched non-affected controls (age range: 7–16 years) with average intelligence, and monolingual English-speaking backgrounds, participated. Exclusionary criteria for the MM/SH group were: prior history of shunt infection, history of seizure or shunt malfunction within the previous three months, prior diagnoses of attention disorders and/or clinical depression. Verbal memory tasks (learning word and word-pair lists) and nonverbal tasks (recalling positions of dots) were administered to each child. A Learning Index was computed based on performance across three learning trials of the word-pair and dot location tests. Children were also presented lists of 16 words with 8 exemplars each of two distinct semantic categories (e.g. fruits, animals), and told to make as high a score as possible by learning the words. Value of the words was designated by category membership (e.g. animals = 1; fruits = 10). Performance across three trials was used to determine a Selective Learning score.

Results

Children in our study did worse than their age-matched controls on both learning tasks ($P < 0.05$). When asked what strategy was used in the selective learning tasks, 10 of the 13 MM/SH children (76%) said they tried to remember all words. In contrast, all except for one control said they tried to remember the higher point words – the more efficient strategy.

Conclusions

Success in school is largely dependent on the ability to selectively recall important facts and ignore less important information. Children with MM/SH in our study were unable to select and remember important information, and did not have a workable strategy. Preliminary findings are consistent with our previous clinical and research findings wherein children with MM/SH focus on many extraneous details, but are unable to remember the main gist of a story/event. Poor acquisition of new material (learning) suggests that children with MM/SH need more trials to learn than their non-affected peers and bears further exploration.