

Central Adrenal Insufficiency in Individuals with Prader-Willi Syndrome

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A recent article in the Journal of Clinical Endocrinology and Metabolism by de Lind van Wijngaarden et al indicated that there may be a high frequency of central adrenal insufficiency (CAI) in individuals with Prader-Willi syndrome. Morning salivary cortisol levels and cortisol profiles were normal in all the children studied, leading the authors of the study to conclude that CAI in individuals with PWS only becomes apparent during stress. Therefore, the presence or absence of CAI cannot be determined by measuring an 8 AM cortisol level – the individual must be tested while stressed (e.g. with febrile illness) or using a stimulation test.

Given this information, we recommend that all individuals with PWS should be screened for the presence of CAI. The two ways to test for CAI are (1) to measure a cortisol and ACTH level while the child is sick or (2) to perform a stimulation test which will evaluate the hypothalamic-pituitary-adrenal axis. Because some children with PWS do not have fevers when ill, it can be difficult for parents and physicians to know when the child is sick enough to put the body under significant stress to accurately assess the presence of CAI. Thus, a stimulation test may be the best way to detect adrenal insufficiency. The metyrapone stimulation test was used in the above-mentioned research study, but this test is not usually done in the United States. A low-dose ACTH stimulation test (1 mcg ACTH) has ~ 95% sensitivity for diagnosing impaired adrenal function, but may miss mild CAI; a glucagon stimulation test has equal sensitivity for diagnosing CAI but may pick up more subtle abnormalities of the hypothalamic-pituitary-adrenal axis, and an insulin-tolerance test is the gold standard for evaluating for the presence of CAI.

Please present this information to your endocrinologist and discuss testing for CAI with him/her. It is important to discuss the fact that the presence or absence of CAI in an individual with PWS cannot be determined by measuring an 8 AM cortisol level – the individual must be tested under a stressful condition (e.g. illness) or using a stimulation test.