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The Relationship of Anti-Mullerian Hormone Levels and Urine Cortisol in Women with Chronic Abdominal Pain

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Context: Persistent and intense stress leads to chronic activation of the hypothalamic-pituitary-adrenal (HPA) axis, placing an individual at

increased risk for the development of disease. HPA activity inhibits ovarian functioning, and may contribute to female infertility.

Objective: The objective of the study was to explore the association of HPA activity with ovarian functioning in female participants with and without chronic abdominal pain (CAP).

Design/setting/and subjects: A secondary data analysis was performed using data from female participants in a natural history protocol at the National Institutes of Health. A total of 36 females (19–39 years, mean 27.11) were included in the study.

Main outcome measurements: Whole blood was drawn for determination of serum levels of anti-Mullerian hormone (AMH), luteinizing hormone, follicle stimulating hormone, and cortisol. Urine samples were collected over a five hour period for determination of cortisol levels. CAP was defined as presence or absence of chronic abdominal pain for >6 months and was determined via self-report.

Results: AMH concentrations declined significantly with age as expected. When AMH levels were dichotomized as normal or abnormal (defined as higher or lower than age-specific normative ranges), there were significant associations between abnormal AMH levels and CAP and urine cortisol levels. Subjects with CAP or low urine cortisol levels were significantly more likely to have abnormal AMH levels.

Conclusions: Results suggest that chronic pain and HPA dysregulation may be associated with abnormal AMH levels.