District Endocrine

Overactive Adrenal Glands: Cushing's Syndrome

- The adrenal glands are like "top hats" on the kidneys, their job is to produce different kinds of steroid hormones, especially cortisol & adrenaline.
    - These hormones are **necessary for life** because they regulate stress responses that control blood pressure and how our cells use glucose.
    - Sometimes the adrenal glands can make too much of these hormones, and this has very important consequences on patients' overall health.
        - The general term for excess cortisol is Cushing Syndrome.
- Why would the adrenal gland become overactive?
    - Sometimes there is a tumor in the pituitary gland in the brain.
        - This gland normally makes ACTH, which signals the adrenal glands to do their job.
        - If that tumor happens to make ACTH independently, then the adrenal glands respond by pumping out a lot of cortisol.
    - Sometimes there is a nodule in the adrenal gland that makes cortisol independently.
    - Some types of cancer can make ACTH or cortisol independently.
- What are the symptoms of Cushing Syndrome?
    - The classic "textbook" appearance is obesity, especially at the midsection, with red/purple stretch marks, excess hair, a "buffalo hump" and a "moon face."
    - Patients may have fatigue, weakness, excessive bruising, high blood sugars and high blood pressures.
- How do we diagnose Cushing Syndrome?
    - First we do a screening test
        - Take 1-2mg of dexamethasone at 11:00pm and then have blood drawn at 8:00am the next day. A normal person will show a low cortisol (less than 1.8) in response to taking that dexamethasone.
    - If the screening test is positive, we have to confirm that result with 2 other tests.
        - Salivary cortisol: taken at midnight on 3 consecutive nights.
        - 24 hour urine collection to measure cortisol concentration.
    - If the lab tests confirm excess cortisol, we have to find the source.
        - CAT scan adrenal glands

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    - Lab tests for ACTH
    - If no source is easily found, we have to think about whether a cancer might be making the hormone.
- I have Cushing Syndrome, how do we treat it?
    - If the source is the pituitary gland, the first line definitive treatment is surgical removal of the tumor by a neurosurgeon.
    - If the source is an adrenal nodule, the first line definitive treatment is surgical removal of the tumor/gland by either a general surgeon or a urologist. The remaining gland can compensate hormonally.
    - If the patient is not a safe candidate for surgery, there are medications that can be given to block excess cortisol.
- What happens after definitive treatment?
    - Patients will show an impressive change: they lose weight, diabetes resolves, blood pressure decreases and their healthspan & lifespan improves significantly.

Resources

- Google image search “Cushing Syndrome Before and After Surgery”
- Mayo Clinic www.mayoclinic.com section on Cushing Syndrome
- NIH https://www.niddk.nih.gov/health-information/endocrine-diseases/cushings-syndrome

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