Adrenal Suppression

What is Adrenal Suppression?

Adrenal suppression is a condition in which the adrenal glands (located on top of each kidney) are unable to produce the right amount of cortisol. Cortisol is a hormone that is important in maintaining a normal blood pressure and prevention of low blood sugars. It also plays a role in maintaining normal energy levels and in fighting infection. Cortisol is especially important when the body needs to fight an infection or recover from a broken bone or other illness; at these times, the body needs greater amounts of cortisol. Adrenal suppression can lead to severe illness if not properly managed. Management includes regular administration of steroid medications, adjustments of medication for illness and regular visits to the pediatric endocrinologist.

What causes Adrenal Suppression?

The pituitary gland (located in the brain) sends a special hormone called ACTH to the adrenal glands to stimulate cortisol release. When cortisol is made by healthy adrenal glands, it acts on the pituitary gland to decrease production of ACTH and in turn cortisol. This "negative feedback loop" maintains an appropriate amount of cortisol in the blood stream at all times. If the body is exposed to glucocorticoids (synthetic cortisol), from an external source, the glucocorticoids can act on the pituitary gland to decrease production of ACTH. After prolonged exposure and/or high doses of glucocorticoids, the body can develop "adrenal suppression", a condition which prevents the body from making it's own cortisol. This is a transient condition that can last from weeks up to months.

Why use Glucocorticoids if they cause Adrenal Suppression?

Glucocorticoids are a category of medications that are essential for the treatment of many pediatric conditions. Some of these conditions include asthma, nephrotic syndrome, arthritis, cancer, hemangiomas, among many others. Glucocorticoids work by decreasing inflammation caused by the underlying condition. Although glucocorticoids can cause adrenal suppression, this side effect can be managed and glucocorticoids provide the best therapy for many conditions. You should never stop glucocorticoid treatment without your physician's advice.

What is the possible effect of Adrenal Suppression?

Symptoms of adrenal suppression are often difficult to recognize as they may imitate an infection or other illnesses. Some of the possible symptoms include tiredness, weakness, nausea, vomiting, poor recovery from illness or just "feeling unwell". Sometimes, the child does not have any symptoms until he/she is presented with an illness or is going for a surgery without the appropriate glucocoritoid treatment. In a healthy adrenal gland, we make more cortisol to help to deal with a stress such as an illness or surgery. In a child with adrenal suppression, no stress response is mounted and this can lead to severe illness including low blood pressures and low blood sugars. Symptoms of low blood pressure are dizziness and weakness. Symptoms of low blood sugar are hunger, cool clammy skin, headache, sleepiness, and confusion. These symptoms can be so severe that emergency treatment may be necessary. These symptoms can be prevented with the appropriate treatment of adrenal suppression.

How is Adrenal Suppression diagnosed?

Cortisol can be measured in the blood. In addition, a test may be done to determine if the adrenal glands are producing enough hormones even during times of stress. With this test, a

hormone called ACTH is given, either as an injection in the muscle or through an intravenous catheter (I.V.) Normally, ACTH will tell the adrenal gland to make the hormone, cortisol. The diagnosis of Adrenal suppression may be made if the child's cortisol level does not increase normally after ACTH is given.

What is the treatment for Adrenal Suppression?

CORTISOL REPLACEMENT

A glucocorticoid (hydrocortisone, prednisone or methylprednisone), is given by mouth in the amount that the body normally would produce as cortisol. The timing of glucocorticoid administration and the dose of the medication allows for gradual, safe recovery of the body's own cortisol production. When your child is sick he/she will need a stress dose of glucocorticoid replacement. If your child vomits and/or is unable to take the glucocorticoid by mouth, an intramuscular injection (shot) of cortisol will be necessary. Your physician will give you prescriptions for all medications. It is essential to follow the directions.