

GLOSSARY OF TERMS AND REFERENCES

Glossary

ACTH

Adrenocorticotrophic hormone, the messenger hormone produced by the pituitary gland which regulates adrenal production of cortisol.

ACTH stimulation test

A blood test in which the amount of cortisol in the blood is measured before and after an injection of ACTH, usually over a period of 60 minutes. Individuals with adrenal disease produce a comparatively small amount of extra cortisol in response to the injection. Different hospitals apply different thresholds to define how small an increase in blood cortisol means adrenal failure.

Addisonian crisis

Symptoms of a serious drop in blood pressure, mental confusion and extreme weakness. A potentially life-threatening situation, which requires immediate emergency treatment.

Adrenal glands:

The two small glands located just above each kidney. There are two components to each adrenal gland: the inner core (the medulla) and the outer shell (the cortex).

Adrenaline

The 'fight or flight' hormone produced by the adrenal medulla in response to stress, which raises blood pressure. Adrenaline is also known as epinephrine.

Adrenoleukodystrophy

A rare hereditary condition triggered by the abnormal metabolism of fatty-acids, which includes neurological degeneration and adrenal insufficiency.

Aldosterone

A hormone produced by the adrenal cortex which plays an important role in controlling the body's blood pressure, sodium and potassium levels and water balance.

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Autoimmune adrenalitis

The most common cause of Addison's disease in developed countries, where an over-active immune system attacks the adrenal tissues. The cause of autoimmune adrenalitis is not known.

Autoimmune conditions

A general term to describe the wide variety of medical conditions, which can be caused by an over-active immune system. More common autoimmune conditions include hayfever and some forms of arthritis.

Blood sugar

An important component of the blood, which is used by the body for energy. Cortisol helps to maintain blood sugar at a stable level. More technically, blood sugar can be referred to as serum glucose.

Chronic

The medical term for a long-lasting disease involving slow changes. It does not imply anything about the severity of the disease.

Coeliac disease

A sensitivity to gluten (found in wheat, barley, oats and rye) which leads the small intestine to become diseased and fail to absorb nutrients properly. Avoiding all foods containing gluten usually leads to a marked improvement.

Compression fracture

A type of bone fracture often seen with osteoporosis, where the bone crumbles.

Congenital adrenal hyperplasia

A rare hereditary condition where a recessive genetic defect causes variable enzyme defects and blocks the production of cortisol and aldosterone. It can also cause signs of virilization through over-production of male hormones (androgens).

Corticosteroids

A general term to describe cortisol hormone and the synthetic steroids which are used to replace it: hydrocortisone, prednisone and the like.

Cortisol

One of the main hormones produced by the adrenal cortex. Cortisol is essential for life; it stimulates the liver

to raise the blood sugar, mobilizes nutrients, modifies the body's response to pain and inflammation and helps to control blood pressure and sodium levels.

Cortisone acetate

One of the types of synthetic steroid, which is available to replace cortisol in Addison's disease. Cortisone acetate has largely been replaced by the use of hydrocortisone, which is more readily absorbed by the body.

Cushing's syndrome

A serious condition caused by excessive production of cortisol by the adrenals. Symptoms include weight gain (especially around the trunk), reddening of the face and neck, raised blood pressure, raised glucose levels and osteoporosis. Cushing's syndrome can be caused by an overactive pituitary gland or by an adrenal tumour.

Day curve

The most comprehensive test of hydrocortisone medication, where blood samples are taken over a number of hours before and after the normal dose of hydrocortisone medication has been swallowed. Other types of steroid medication (prednisone and dexamethasone) cannot be measured in the bloodstream in the same way.

Depression

A mental state of pessimistic or despairing beliefs where sleep, appetite and concentration are disturbed. A medically-defined state of depression is often associated with excessive levels of cortisol, especially at night.

Dexamethasone

One of the types of synthetic steroid that is available to replace cortisol in Addison's disease. Dexamethasone is more than 30 times as potent as hydrocortisone. Because it remains active within the bloodstream over a much longer period, emerging best practice for adrenal insufficiency is to use doses which are 50 to 80 times lower than with hydrocortisone. (See, for example, SA Rivkees et al, "Dexamethasone treatment of virilizing congenital adrenal

hyperplasia: the ability to achieve normal growth", *Pediatrics* 106 (4), Oct 2000). Over-medication with dexamethasone can easily occur with adult doses at or above 0.5mg per day.

DHEA

Dehydroepiandrosterone, the third major hormone produced by the adrenal glands along with cortisol and aldosterone. It is converted by the body to both male and female sex hormones (androgens and oestrogens). Numerous medical studies are now taking place to better understand its uses and influences in human health.

Diabetes

A metabolic disorder causing excessive thirst and large volumes of urine. There are several types of diabetes, the most common being diabetes mellitus types 1 and 2, where blood sugar and insulin levels are affected.

Diabetes insipidus

A rare metabolic disorder where the pituitary gland fails to produce enough of the hormone vasopressin. This causes the body to produce large quantities of dilute urine, leading to the need to drink large quantities of liquid and pass urine frequently.

Electrolyte

In medical terms, this refers to the concentrations of sodium, potassium and other common chemicals found in the blood. The adrenal hormones cortisol and aldosterone play an important part in maintaining normal sodium and potassium levels in the blood.

Endocrine

A term to describe the major glands in the body: the pituitary, thyroid, parathyroid, adrenals, ovaries, testes and part of the pancreas.

Endocrinologist

A professionally qualified medical specialist in the field of the endocrine glands.

Fludrocortisone

The only synthetic steroid that is available to replace the adrenal hormone aldosterone in the treatment of Addison's disease.

Glaucoma

A condition affecting the eye, where a build up of pressure inside the eyeball leads to a loss of vision.

Hydrocortisone

One of the types of synthetic steroid that is available to replace the adrenal hormone cortisol. In most cases hydrocortisone is the preferred drug for the treatment of Addison's disease.

Hyperthyroidism

Over-activity of the thyroid gland, either due to a tumour, overgrowth of the gland or Graves disease, leading to weight loss, increased appetite, rapid pulse and intolerance to heat.

Hypoglycaemia

The medical term for low blood sugar. Very low levels cause muscle weakness and inco-ordination, sweating and mental confusion.

Hypoglycaemic seizure

A reaction to very severe low blood sugar. This is often known as hypoglycaemic coma, where the individual loses consciousness following symptoms of extreme weakness, dizziness, and mental confusion.

Hypoparathyroidism

A deficiency of the parathyroid hormone, causing a fall in the blood concentrations of calcium and muscular spasms.

Hypothyroidism

A deficiency of the thyroid hormones, causing the metabolic rate to slow and leading to a slow pulse, weight gain, sensitivity to cold, delayed reactions, loss of concentration and a coarsening of the skin.

Insulin

The hormone, produced by the pancreas, which plays the main role in regulating blood sugar. Lack of this hormone gives rise to diabetes mellitus.

IVF

In Vitro Fertilisation.

Ketones

The chemical compounds that are formed when the body metabolises fat. Raised levels of ketones occur when there is an imbalance in the body's metabolism and are associated with several conditions, which may damage overall health.

Metabolism

The rate at which your body consumes energy and utilises medication. This rate can vary quite widely between individuals.

Mineralcorticoid

A general term to describe aldosterone hormone and the synthetic steroid fludrocortisone, which is used to replace it.

Normal values

Normal levels of hormones and other chemical components of the blood. For most components of the blood there is an upper and a lower limit to these normal values. The exact numbers attached to the upper and lower limit vary slightly from one laboratory to another.

Osteomalacia

Softening of the bones caused by a progressive loss of calcium. This can often be reversed by treatment with vitamin D.

Osteopenia

The medical term for a general deficiency of bony tissue.

Osteoporosis

In medical terms, the loss of bony tissue leading to bones which are brittle and liable to fracture. In this manual, used as a general term to cover the various types of bone disorder, which can be detected by a bone scan.

Pernicious anaemia

The type of anaemia that results from vitamin B12 deficiency. This can have several causes, including coeliac disease and another autoimmune condition, lack of intrinsic factor, in which the stomach does not secrete the substance needed for the intestine to absorb B12. Treatment is by injection of vitamin B12.

Pituitary gland

The most important of the endocrine glands, the pituitary regulates and controls the activity of other endocrine glands and many body processes. It is located inside the skull, just behind the eyes and tucked below the grey matter of the brain.

Plasma

Blood plasma, the straw coloured fluid that surrounds the blood cells.

Plasma cortisol

The technical term for blood levels of the adrenal hormone cortisol.

Plasma renin

The technical term for blood levels of renin, which is an enzyme released by the kidneys. Renin is important in maintaining blood pressure and renin levels rise to compensate when aldosterone levels are low.

Polyglandular autoimmune syndrome Types 1 and 2

Type 1 of this polyglandular syndrome usually appears in childhood or early adolescence, and often includes failure of the parathyroid gland and thrush (candidiasis) along with adrenal insufficiency. Type 2 of this polyglandular syndrome usually appears in adulthood and may include thyroid disease, insulin-dependent diabetes, failure of the ovaries or testes, or in a few cases diabetes insipidus, along with adrenal insufficiency.

Potassium

An essential mineral in the blood, potassium helps to maintain normal functioning of muscles and nerves. Levels are partly controlled by the adrenal hormone aldosterone.

Prednisone

One of the types of synthetic steroid that is available to replace cortisol in Addison's disease. Prednisone is roughly four times as potent as hydrocortisone and remains active within the bloodstream over a longer period.

Primary adrenal insufficiency

Lack of adrenal hormones, caused by a disease process that has directly affected the adrenal glands. The main form of primary adrenal insufficiency is Addison's disease.

Renin

An enzyme released into the blood by the kidneys which is important in maintaining blood pressure. Renin levels rise to compensate when aldosterone levels are low. Most endocrinologists use plasma renin as the indicator of when fludrocortisone medication is required.

Secondary adrenal insufficiency

Lack of adrenal hormones, caused by a disease process that has impaired the pituitary gland. When the pituitary no longer produces the messenger hormone ACTH, the adrenal glands do not produce sufficient cortisol.

Secondary adrenal suppression

Lack of adrenal hormones, caused by a reaction to high doses of steroid medication, which has impaired the pituitary gland. Because the pituitary gland's normal production of ACTH has been suppressed, the adrenal glands do not produce sufficient cortisol. In most cases, it takes months or years to reverse secondary adrenal suppression; in a few cases the suppression is irreversible.

Sodium

An essential mineral in the blood, sodium helps to maintain normal functioning of muscles and nerves. Levels are partly controlled by the adrenal hormones cortisol and aldosterone.

Steroid

A general term which can refer to the naturally-occurring steroid hormones of the body, (including oestrogen, testosterone, cortisol and aldosterone), and to the synthetic steroids used as medication.

Steroid replacement therapy

The prescription of synthetic steroids to replace a deficiency in the body's production of those hormones.

Thyroid

One of the endocrine glands, located in the neck just below the Adam's apple.

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