Hormone management in the human body: blame it on the endocrine system

Health & Medicine

The Endocrine System

The endocrine system is a control system made up of ductless glands. The endocrine system plays a crucial role in the human body. The endocrine system is responsible for the production and release of chemical messengers called hormones. These hormones can affect growth, metabolism, and sexual maturity. The improper release or production of hormones can lead to multiple diseases or disorders, such as metabolic disorder. Without the endocrine system, hormones would not circulate throughout the body. If the hormones aren’t circulated, then they won’t be delivered to parts of the body that are in need of them.

The endocrine system is mostly glands throughout the body. The hypothalamus, pituitary gland, and pineal gland are located within the brain. The thyroid gland is near the neck or throat. The middle of the chest is home to the thymus. The abdomen is where the pancreas and adrenal glands are located. Lastly, the ovaries in females and the testes in males are in the lower abdomen. Each one of these glands is responsible for releasing and producing hormones for the body. These hormones circulate within the body via the bloodstream to affect distant organs. Hormones act as “ messengers”, and are carried by the bloodstream to different cells in the body. These cells interpret these “ messages” and act on them. The endocrine system does include many glands; however, the system does not contain exocrine glands, such as salivary glands, sweat glands, and glands within the gastrointestinal tract.

There are many possible diseases that can occur within the endocrine system. Hypoparathyroidism is one of these diseases. Hypoparathyroidism is a rare condition, it most commonly occurs due to removal of the parathyroid glands. Hypoparathyroidism is a combination of many symptoms due to inadequate parathyroid hormone production. The disorder is the state of decreased secretion or activity which leads to decreased blood levels of calcium and increased levels of blood phosphorous. Hypoparathyroidism symptoms can range from mild tingling in the hands, fingers, and around the mouth to more severe muscle cramps. The most severe are tetany, severe muscle cramping of the entire body, and convulsions, this is quite rare. Vitamin D and calcium supplements are the primary treatments for hypoparathyroidism. A vast majority of patients need to take calcium multiple times a day. They must also take a high-dose of vitamin D every day. Another disease in the endocrine system is hyperglycemia. Hyperglycemia means high (hyper) glucose (gly) in the blood (emia). In order to properly function, your body must have glucose. Glucose is the energy source for the cells in your body. Hyperglycemia is a defining characteristic of diabetes. Glucose comes from the carbohydrates in the foods you consume. Your body turns the carbohydrates into glucose; the glucose is then transported throughout the body via the bloodstream. Early hyperglycemia symptoms include increased thirst or hunger, frequent urination, sugar in the urine, headache, blurred vision, and fatigue. Treating hyperglycemia is a matter of preventing it. You can talk to your doctor if your blood glucose levels are consistently high. Your doctor can talk to you about what you can do to bring them down to normal levels.

Many disorders/ diseases within the endocrine system still do not have any treatment options. However, there are some that do; Type 1 diabetes is one of them. Type 1 diabetes is a disease where the pancreas does not produce the hormone insulin. They have found a process that helps Type 1 diabetes patients. Insulin pumps are relatively new to the medical world. Insulin pumps are used along with a meter that tests your blood. Patients must first test their blood. The meter shows their blood glucose levels. If their blood glucose levels are too high, then they adjust their pump to release insulin. The pump can be attached to the abdomen, back of the arm, thighs or hips. Patients must test before and after eating and exercising. Another disease that has new treatment options is thyroid cancer. There are two types of thyroid surgery- a partial thyroidectomy and a total thyroidectomy. Most patients must undergo thyroidectomy, which makes them hypothyroid. The total removal of the thyroid gland makes patients incapable of producing thyroid hormones. However, the removal gets rid of the cancer as well.

A specialist for the endocrine system is called an endocrinologist. An endocrinologist studies the organs and diseases within the system. After going to medical school, someone interested in being an endocrinologist needs to take special training. This training will give the student extensive knowledge on clinical chemistry and biochemistry. This knowledge helps them better understand the profession. An endocrinologist must know how to distinguish human variation from disease. Diagnostic imaging of the organs within the endocrine system can reveal findings called incidentalomas. Incidentalomas may or may not present disease. Endocrine disorders are chronic diseases that need life-long treatment. This means an

endocrinologist must care for the patient as well as the disease. Most endocrinologists take part in clinical science, medical research, teaching, and hospital management along with treating patients. Most endocrinologists need special training. Stanford Medical School in California can provide such training. Endocrinologists usually qualify as an internist, pediatrician or gynecologist for a few years before specializing, however, this fluctuates depending on the local training system. In the U. S., after going to medical school you train for your specialty. This is called a residency. The typical training for an endocrinologist in the U. S. includes four years of college, four years of medical school, and three years of residency. Adult endocrinologists are certified by the American Board of Internal Medicine or the American Osteopathic Board of Internal Medicine in Endocrinology, Diabetes, and Metabolism. The average hourly wage for an endocrinologist in the U. S. can range from $46 per hour to $82 per hour. The mean salary for an endocrinologist can range from $146, 653 per year to $166, 620 per year in a clinical or hospital setting. A self-employed endocrinologist takes home between $127, 743 per year to about $187, 182 per year. The highest paid endocrinologist can receive $211, 416 per year, while the lowest earns approximately $163, 968 per year.