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A Brief Overview on Anti-Diuretic Hormone

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DESCRIPTION

Anti-diuretic hormone regulates the quantity of water and hence the concentration of urine discharged by the kidney to maintain blood pressure, blood volume, and tissue water content. Specific nerve cells in the hypothalamus, which lies towards the base of the brain, produce anti-diuretic hormone. The hormone is transported by nerve cells through their nerve fibers (axons) to the posterior pituitary gland, where it is released into the circulation. By acting on the kidneys and blood arteries, anti-diuretic hormone helps to manage blood pressure. Its main purpose is to keep body hydrated by reducing the quantity of water send out in urine.

This is accomplished by permitting uric acid and fluid loss into the body at a specific kidney site. More water is taken into the circulation as a result, urine content rises, and water loss decreases. When anti-diuretic hormone levels rise, blood vessels constrict (narrow), raising blood pressure. Dehydration (a lack of body fluid) can only be treated by increasing water consumption. A variety of variables regulate the release of anti-diuretic hormone from the pituitary gland into the blood. A decrease in blood volume or low blood pressure is caused by dehydration or a hemorrhage, which is recognized by sensors (baroreceptors) in the heart and main blood arteries.

Anti-diuretic hormone is also secreted when the concentration of salts in the circulation rises, such as when you don't drink enough water on a hot day. Special nerve cells in the hypothalamus (osmoreceptors) detect this by simulating pituitary anti-diuretic hormone production. Thirst, nausea, vomiting, and pain all cause the release of anti-diuretic hormone, which serves to maintain the level of fluid in the bloodstream during times of stress or damage. Alcohol inhibits the release of anti-diuretic hormone, resulting in an increase in urine output and dehydration. High anti-diuretic hormone levels lead the kidneys to retain water in the body.

A disease known as syndrome of inappropriate anti-diuretic hormone secretion occurs when too much anti-diuretic hormone is secreted. Excessive water retention dilutes the blood, resulting in a generally low salt content. Excess anti-diuretic hormone levels may be produced

by pharmacological side effects or disorders of the lungs, chest wall, brain, or pituitary gland. Some tumors, particularly lung cancer, have the ability to create anti-diuretic hormone. Low levels of anti-diuretic hormone lead the kidneys to expel an excessive amount of water. Urine volume will rise, causing dehydration and a drop in blood pressure. Low levels of anti-diuretic hormone may suggest hypothalamic or pituitary gland injury, or primary polydipsia (compulsive or excessive water drinking). The low amount of anti-diuretic hormone in primary polydipsia shows the body's attempt to get rid of extra water in order to keep the blood from becoming overly dilute. Diabetes insipidus is a disorder in which the kidneys are either unresponsive to anti-diuretic hormone (typically owing to a tumor, trauma, or inflammation of the pituitary or brain). Diabetes insipidus is characterized by excessive thirst and the production of large volumes of pale urine, which, if left untreated, can result in rapid dehydration.