

Title: A Case Study Approach to Reinforce Concepts of Two Volume Regulating Hormone Systems Taught in Anatomy and Physiology Class

Our study describes a case study, pedagogical inquiry-based method, which reinforces information about two volume regulation hormone systems: Renin-Angiotensin-Aldosterone-System (RAAS), taught in Human Anatomy and Physiology and Atrial Natriuretic Peptide (ANP). Angiotensin II is produced when blood volume and pressure become low which could be due to sweating. It increases blood volume through retaining water and sodium at the kidneys and pressure by vasoconstriction. Atrial Natriuretic Peptide (ANP) is released by the heart when blood volume and pressure is elevated. It lowers volume through excretion of water and sodium by the kidneys and decreases pressure through vasodilation. The case study deals with a fictional person with acute heart failure and the use of an investigational drug Entresto (on the market for chronic heart failure) in the treatment of the patient. The investigational drug consists of two medications. An Angiotensin II receptor antagonist which inhibits the hormones action and an ANP agonist that prevents the breakdown of ANP. Based on their understanding of the two volume regulating systems students are required to determine why this medication would be used on a person with acute heart failure and come up with additional questions pertaining to the case. This case study reinforces an understanding of the above hormones through their practical application in a medical situation. Authors: Daegan Keyes and James Cronmiller