Research in the Behavioral Immunology and Endocrinology Laboratory reflects a number of interests most of which are currently focused on translational approaches that apply observations from animal studies both in this laboratory and others addressing the impact of early developmental challenges on immune and endocrine regulation. Our early studies and more recent studies have led to a number of projects that involve psychiatric and medical populations. One example includes the impact of psychiatric disorders on regulation of the hypothalamic pituitary adrenal (HPA) axis during social challenges or diurnal variation in release of cortisol as measured in saliva. We have developed a novel and compact means for collecting saliva for these samples that is well suited to field studies and minimally invasive. This resulted in collaborations with the Space Program at NASA to investigate the potential for salivary cortisol to serve as a biomarker of stress in the astronauts during training and flight missions. However an overarching goal is to determine how the HPA axis responds before treatment and whether it is predictive of treatment outcome and long term prognosis in patients with psychiatric disorders. Patient populations presently under investigation include traumatized groups (both early and adult traumas), medical patients with serious illnesses such as cancer and their caregivers, adolescents with chronic illnesses (asthma/allergy), adolescent populations with affective (anxiety, depression, bipolar disorder) and eating disorders, children with genetic risk factors (fragile X, autism, ADHD, Williams syndrome), adolescents with substance use disorders, and at risk infants hospitalized in neonatal intensive care units. Some of studies include a variety of treatment approaches ranging from family interventions to drug trials which represent collaborations with other researchers at the University of Colorado Denver.

Noninvasive studies of early development and the role of the quality of the early mother-infant relationship in nonhuman primates still remains an important research area of the laboratory. Interactions between polymorphisms of genes controlling neurotransmitter activity such as the serotonergic and dopaminergic systems and the early maternal relationship and their effects on impulsivity in novel situations, social interactions, and regulation of the HPA are a particular interest in socially living macaque monkeys. Regulation of the HPA during social challenges in transgenic mice representing a potential model of fragile x is also underway. This laboratory has the capability for immune and neuroendocrine assessments in a variety of subject populations that include both animal models and human patient populations.

Methodology

Biomarkers: Human and Animal Models

Clinical and special developmental populations

Adolescents; Anxiety; Co-Morbid Medical Illnesses; Depression; Infant; Pregnancy

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