

Behavioral Medicine

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Overview

The department's research focus is on the contribution of psychological and behavioral factors to the onset, progression, and management of physical and mental disease. Projects range from the purely behavioral to the cellular, with new studies extending to gene expression. Our goal is to elucidate the mechanisms by which psychological and behavioral factors confer risk of physical and mental disease.

Current Research

The Psychophysiology of Coronary Artery Disease (CAD)

In a series of NIH and American Heart Association funded research projects, investigators have examined the role of the autonomic nervous system in the connection between psychosocial factors and heart disease. These studies have examined the pathophysiologic role of autonomic nervous system in linking characteristics such as depression and hostility to heart disease. We have used experimental and quasi-experimental methods to study how enhancing or reducing autonomic regulation of the heart confers an elevated or reduced risk of CAD. In the former, cardiac autonomic activity has been enhanced by aerobic training or CBT-based hostility reduction. In the latter, cardiac autonomic regulation has been totally eliminated by cardiac transplantation. These experimental models permit testing whether the link between psychosocial factors and CAD depend upon the autonomic nervous system.

With funding from Intel, we are developing an instrument assisted brief CBT program to treat hostility. The program is built around a smart cell phone that simultaneously monitors psychosocial states by presenting brief diaries periodically throughout the day and underlying cardiac autonomic activity by assessment of RR interval variability. The phone alerts patients to states of elevated stress and instructs them to apply the techniques learned during CBT sessions.

Finally, investigators are testing whether depression secondary to cytokine treatment of hepatitis C and melanoma resembles major depressive disorder by imaging the serotonin transporter before and after these patients either do or do not become depressed.

Maternal Mood and Fetal and Neonatal Development

In a series of studies, investigators are examining the influence of maternal mood disorder on fetal and neonatal development. Women in their third trimester of pregnancy are studied at rest and in response to psychological challenge and their cardiovascular responses, along with the heart rate response of the fetus, are measured. Data are again collected from infants at 4 months of age. Studies have revealed women's mood during pregnancy can influence fetal HR patterns as well as infants' cortisol activity at 4 months of age. Moreover, women's who have depression and/or an anxiety disorder during pregnancy are more likely to have infants with difficult temperament, a risk factor for future mental illness. The results are consistent with the hypothesis that maternal psychological variables may shape the neurobehavioral development of the fetus and future child. These findings have implications for the role of maternal mood regulation on child development and suggest that the widely accepted association between maternal mood and psychopathology in the child may be the product of nongenetic transmission.

Cognitive Sequelae of Chemotherapy for Breast Cancer

In North America, breast cancer affects approximately 200,000 women per year. The success of adjuvant chemotherapy has made breast cancer a chronic medical condition and as a consequence, many women now live long enough that long-term sequelae have become significant. Many women report fatigue, trouble with attention span, concentration, thinking, and memory both during and after treatment. While these difficulties may be mild, they nevertheless affect day-to-day functioning and quality of life.

Regrettably, these anecdotal accounts are not supported by systematic study to determine whether chemotherapy actually results in cognitive dysfunction. In a series of studies, investigators have examined cognitive function before adjuvant treatment and function at several intervals after the completion of treatment. Post-treatment data still are being collected but a large number of patients were rated as cognitively impaired before beginning any treatment. This finding raises doubt about a causal link between cognitive impairment and adjuvant chemotherapy treatment, and underscores the need for pre-treatment baseline assessments to study change in cognitive functioning over time.

Education and Training

Behavioral Medicine clinical faculty provide regular face-to-face supervision of Psychiatry Residents (PGY-III), Psychology Interns, and Psychology Externs in cognitive-behavior therapy. In addition, clinical faculty lecture regularly in seminars for Psychiatry Residents (Dr. Mike Devlin, Dr. Peter Shapiro, course administrators) and Psychology interns (Dr. Mike Quittman, Dr. Susan Sussman, course administrators).

Clinical Services

Behavioral Medicine clinical faculty provide cognitive-behavioral therapy on an outpatient (and occasionally inpatient) basis for patients with a variety of psychological and behavioral problems. The program also offers specialized expertise in the treatment of physical health problems that are affected by stress, habits, and lifestyle.

Highlights

NIMH R34 Therapy for Prenatal Depression: Maternal & Fetal Effects, Catherine Monk, PI
Intel-Mobile Therapies for the Heart, Richard Sloan, PI