CLINICAL PSYCHOLOGY

A Model of Patients at High Risk of Developing Stress-Related Illness, and the Discipline of Behavioral Medicine.

Sir William Osler, the great physician and teacher of medicine, once wrote, "Sometimes it is more important to know what kind of patient has a disease than to know what kind of disease a patient has."

But Osler, like other turn-of-the-century physicians, often had to rely on intuition to tell him the kind of patient he was dealing with.

Today empirical tests can categorize patients and pick out those likely to develop chronic stress-related diseases.

Every physician has encountered the patient who has a plethora of physical symptoms and yet no traceable pathophysiology. He or she may have had batteries of medical tests and hosts of treatments. Sometimes the patient has gone from doctor to doctor. He can be identified by the weight of his folder. It may have been suggested that "it is all in his head." Yet his symptoms are subjectively very real.

Often diagnosis has been by exclusion. Thus, if no physical cause can be found, the presumption is that psychological factors must be involved. The medical doctor may throw up his hands and send the patient to a clinical psychologist or psychiatrist. This logic is faulty. The mind and body are not separate. The need is for both disciplines to work together.

A psychophysiological model (Wickram, 1977, 1979, 1983) and set of test procedures used at The Behavioral Medicine Clinic and Stress Disorders Research Laboratory at Eastern Virginia Medical School, identifies patients at high risk of developing chronic stress-related disease. It is also used to identify those patients, with diagnosed physical ailments, whose psychological profile suggest that behavioral factors can be expected to aggravate their physical condition.

Chronic stress-related illness is perhaps the dominant form of disease in our time. Osler’s patients often had acute infectious diseases: small pox, malaria or typhoid. Today’s doctor is apt to see chronic cardiovascular disease, muscular and skeletal disorders, or irritable bowel syndrome; all of which have connections to stress. In 1983 the 3 most frequently prescribed drugs were Inderal, Tagament, and Valium. Recent experimental evidence from the new field of psychoneuroimmunology (Adler, 1981) suggests that the onset and course of even cancer can be attenuated or exacerbated by psychosocial factors.

The model uses relatively simple tests to identify and weigh 5 factors common to many high-risk patients: 2 of those factors are partly generic, the others are learned. Once identified, all may be modified to some extent through standard behavioral medicine techniques such as behavior therapy, hypnosis, and biofeedback.

For the patient with baffling physical symptoms who is identified by these tests as "high risk", it means an option other than medical procedures that may be invasive, irreversible, or dangerous. For the "low-risk" patient it suggests that further medical investigation is probably warranted, because behavioral and psychological factors cannot account for the presenting physical symptoms.
Each patient is monitored physiologically (EMG, blood pressure, heart rate, skin conductance, peripheral skin temperature monitoring, etc.) while he is stressed psychologically to determine his most reactive biological response system. In other words, his "window of vulnerability" or organ system, where, under stress, his body is likely to become clinically symptomatic. This procedure is called the Psychophysiological Stress Profile. That knowledge, obviously, has important implications in preventative medicine as well as in standard treatment modalities. It shows the patient, in a credible and quantifiable manner, that psychological stress can radically alter many biological functions. As psychosocial stress and maladaptive lifestyles (alcoholism, Type A behavior, smoking, lack of exercise) are accepted as factors in causing or contributing to disease, then behavioral medicine techniques for controlling stress and changing illness-related lifestyles becomes a crucial component in the treatment of modern, chronic disease.

HOW THE MODEL WORKS

Five factors are checked to determine the subject's ability to withstand stress. These include 3 risk factors which predispose one to illness: 1. very high or low hypnotic ability, 2. a habitual tendency to catastrophize or amplify, 3. a labile autonomic response (ANS); and 2 factors that seem to precipitate illness, 4. the massing of psychosocial stressors and 5. poor coping skills and inadequate support systems.

HYPNOTIC ABILITY

Hypnotic ability is a normally-distributed individual-difference variable, like human intelligence. No one would suggest that we are only intelligent when taking an I.Q. test. Similarly, hypnotic ability is not limited to a state of trance.

When patients are confronted with test findings of high hypnotic ability they are often surprised that they have this trait. They need to be reassured that it can be a desirable characteristic that, when used positively, can enhance their life. It is abuse of the hypnotic talent that seems to lead to illness.

Current research suggests that hypnotic behavior is best considered as a mode of information processing. People with hypnotic ability can access that processing mode at will, but lose control under conditions of physiological hypo- or hyper-arousal. Hypnotic ability means a focusing
of attention to the point where there is a reduction of peripheral awareness and critical-analytic cognition. It can be measured with valid and reliable procedures such as the Harvard and Stanford Hypnotic Susceptibility Scales. Recent EEG studies suggest that the hypnotic modality of information processing involves relatively increased activation of the non-dominant hemisphere (right hemisphere) of the brain and inhibition of the dominant left hemisphere.

At the 2 ends of the normal population curve are 10% of the population with very high hypnotic ability and another 10% with very low hypnotic ability. Those people at the extremes have a higher risk of developing disorders and diseases under stress than those in the middle. The high hypnotizables present in both medical and psychiatric situations, the lows make exclusively medical presentations.

High hypnotizables are apt to be creative and average or above in intelligence. They learn anxiety and phobias very quickly and appear to have lower sensory thresholds and unusual memory abilities. Acute pain very easily becomes chronic pain. They learn and remember too well. Some of them spend a great deal of time, up to 50% of waking time, fantasizing. They can hallucinate voluntarily and therefore, can develop delusional pain. They can be distinguished from the psychotic patient because he lacks voluntary control of his hallucinatory process. Eighty-six percent of high hypnotizables in 1 study (Wilson and Berber, 1982) reported frequent physical illnesses related to their thoughts, beliefs, or fantasies. Sixty percent of the women reported false pregnancies including breast change, abdominal enlargement and morning sickness.

Amnestic ability is associated with high hypnotic ability. That capacity to make the mind blank sometimes leads these subjects to suppress the recognition of disease symptoms and thus delay securing medical treatment for legitimate physical disease.

The high hypnotic subject often reports "psychic occurrences"—especially precognition, telepathy, religious experiences or out-of-body episodes. In some very rare cases he or she may be subject to "stigmata" or "possession." Whether these experiences are objectively valid or not is unverifiable and may not be important; they preoccupy the patient and disturb his physiological functions. Most of these patients have learned to conceal their psychic episodes lest they be considered insane. Many have resistant medical problems and histories of numerous exploratory surgeries (upwards of 5 to 15). Paradoxically, these patients may be fully-functional professionals or blue-collar workers or housewives, without any currently diagnosable (DSM III) mental disorders. When their hypnotic ability is discovered by testing in our laboratory and they are asked, confidentially but routinely, if they have "psychic experiences," 95% of high hypnotizables admit that they do, but have never discussed them previously with family, friends or a professional. In fact, they seem genuinely surprised that the investigator has discovered their "secret."

The low hypnotizable is also at high risk of succumbing to stress-related disease, but for different reasons. These are people who are apt to be skeptical and critical. Their minds seem to operate like the programs of a digital computer. Their preferred and sometimes only method of processing information is sequential-analytical. They are unwilling or unable to use fantasy and imagination; they think in concrete and discrete terms. They are relatively insensitive to internal sensory stimuli.
and insensitive to their own feelings and moods. They are literally unaware of feelings like anger, fear and depression and their emotions are transduced into physical symptoms. Often they deny their emotional and physical distress and delay seeking professional help. They have been less carefully studied than the high hypnotizable, in part because they are so distrustful and reluctant to talk.

Often they cannot discuss their psychological states or emotions because of an inability to verbalize feelings known as alexithymia. Alexithymia is defined as lacking “words for moods” (Sifneos, 1972) and was first identified in individuals with psychosomatic disorders. It is hypothesized that aversive external stimuli may directly and reflexively change ANS functions and motor responses in these individuals, thus bypassing consciousness and the opportunity for modification by the verbal-subjective system (left brain).

It is likely that the low hypnotizability may inhibit the central resetting of peripheral autonomic feedback systems. In other words, after the car crash is averted, the blood pressure or myotonia of the low hypnotizable may remain significantly elevated, but he may be unaware of his chronic hyperarousal. His immune system may be much more likely to be deranged by central nervous system events (e.g. anxiety, depression). Now good evidence (Ader, 1981) suggests that the central nervous system can influence the immune system. These symptoms (CNS and the immune systems) are not insulated from each other, as was believed by immunologists for more than 100 years.

**HABITUAL CATASTROPHIZING**

Catastrophizing can be defined as the reflexive tendency to react negatively, to anticipate negatively, and to “make a big deal” out of aversive everyday events. The catastrophizer is a self-doubter, his belief systems are pessimistic. He “awakens” life. He panics easily. He verbalizes his concerns and his mental alarm is picked up by his physiological systems. He is chronically or intermittently on “red alert.” His blood pressure and heart rate may be elevated and his gastric secretions excessive.

“My God, I’m dying!” is his response to slight pain, discomfort or a mild episode of angina; his exaggerated verbalizations may even potentiate a myocardial infarction. Catastrophizers have significantly lower pain tolerance than normals. They are likely to be abusing benzodiazepines, sleep and/or analgesic medication. Catastrophizing is a learned response; it can be unlearned.

**AUTONOMIC (ANS) LABILITY**

Autonomic lability describes the patterned reaction of the autonomic nervous system to stress. Like hypnotizability, it has a genetic basis. The body’s methods of responding to stress are marvelously suited to the lifestyle of the caveman and his family. When danger came in the form of the sabertooth tiger, the surge of adrenaline, the elevated heart rate, the constriction of the blood vessels, were appropriate preparation for “fight or flight.” If the tiger didn’t kill you, you killed the tiger, and in either case your physiological systems returned to normal.

Today’s stress is apt to be chronic—the bratty teenager, the obnoxious boss, the elderly parents who now live with you, the miserable marriage, the harrowing daily drive to work—these won’t go away, as that tiger did. So you stay muscursively braced and your ANS stays on “red alert.” Besides, they produce ambivalent responses: what we often call love-hate complexities. We don’t stop loving the teenager, even if he enrages us. The caveman had an easier time of it, he either destroyed or escaped from his problems. Today we are not permitted these simple choices. Our hassles won’t go away. The typical body response is elevated hypothalamic-pituitary-adrenal baselines. If their elevations are sustained, they are a drain on our mental and physical energy. The repressed anger that comes with a bad marriage, the constant tension of a highly paid but highly pressured job, may keep the body on sustained “red alert,” and that, over time, can only be debilitating and destructive.

Some people seem to be able to handle chronic stress, to flow with it, to keep their body systems in low gear but their minds vigilant. While that may be an inherited ability, there are body control skills that can be learned, particularly through biofeedback, behavior therapy and hypnosis. (Primary hypertension control, for instance, is taught using biofeedback. In behavioral medicine treatment the patient learns to substitute skills for pills; when he cannot fight or flee, he can be taught to flow.)
Psychophysiological Stress Test

There's a positive correlation between ANS lability and coronary artery disease, angina, peptic ulcers, and other stress-associated illnesses. This has been demonstrated in both prospective and retrospective studies.

The Psychophysiological Stress Profile used at EVMS (Wickram, 1976) is a standardized testing procedure which measures the magnitude and duration of a patient's physiological response to psychosocial stress. A computer collects, reduces and prints data on heart rate, blood pressure, frontal EMG, skin conductance, respiration and peripheral skin temperature, etc. The test is conducted at rest, under stress (doing mental arithmetic problems), and during a recovery period. The inability to return rapidly to baseline is predictive of clinical symptoms.

PSYCHOSOCIAL STRESSORS

Both multiple major life changes and the massing of daily hassles are predictive (80%) of the onset of physical illness. Bereavement or divorce, for example, may be more than some emotional and physiological systems can handle; but so may be a daily grind of dirty dishes and diapers and loneliness. Often it is not the mountain in the path, but the pebble in our shoe, that seems overwhelming. Patients with a combination of major life changes (marriage, divorce, job change, death of a sibling) and multiple minor hassles, are at high risk of developing symptoms of physical illness.

Two scales measure psychosocial stressors: The Social Readjustment Rating Scale, which measures major life changes, and The Hassles Scale.

Identification of stressors is crucial, of course, to teaching coping skills and therapeutic management of the patient.

SUPPORT SYSTEMS AND COPING SKILLS

Good support systems can reduce the impact of daily trauma— a happy marriage, a friend to talk to, a comforting church, understanding relatives—are among the buffers that may ease the strain of stressors. So, too, is a good psychotherapist, who becomes, in effect, a purchased friend.

Coping skills include: jogging, tennis, prayer, music, sex, meditation, escape into fantasy, reading; in other words, anything that disrupts the patient's preoccupation with the stress in his life. Patients who lack coping skills or social support systems are at high risk of developing ego fragmentation and clinical symptoms. Support systems and coping skills can be assessed in a standardized clinical interview.

SUMMARIZING THOUGHTS

The first medical revolution was the use of sterile techniques in surgery; the second revolution resulted in the introduction of antibiotics, immunizations and public health procedures for water and sewage; the next revolution, Behavioral Medicine (Wickram, In Press), will eliminate the mind-body dichotomy. Medical specialists and mental health professionals will consider it unreasonable to work in isolation from one another. The internist and clinical psychologist will work in the same office rather than across town.

Clinical observation suggests that the impact of major life changes or multiple minor hassles, depends not only on personality traits (hypnotic ability, ANS lability, catastrophizing), but also on the patient's access to, and use of, effective support systems and coping skills. A patient at greatest risk is one who is positive for all the predisposing features and deficient in buffering systems and coping skills.

The patient with clear physical finding, but suspected of 2 or more of the above risk factors, will, in most cases, profit from a behavioral medicine consultation because he is likely to psychologically potentiate his physical illness.

Tests can determine a patient's "window of vulnerability," the "weak link" where his body is apt to break down. This can be vital information both for diagnosis and prevention.

My clinical observation and multiple converging research studies have confirmed the 5 risk factors. Hypnotic ability is adequately measured today. Tests for the other risk factors are available, but need even further refinement and validation.

These factors need to be
CASE STUDY
This patient is a 40-year-old white single female who was in an automobile accident 4 years ago and hurt her back. She presents lower back and left leg pain. She has seen multiple medical specialists and was using multiple pain, psychotropic and anti-hyperperensive medications when seen by me. Physical findings were unremarkable. She had no root compression and all diagnostic tests (several EMGs, myelograms, etc.) were negative.

The patient has also had numerous sessions of physical therapy—heat, ultrasound, TENS, and finally a laminectomy 2 years ago. When she came to the Behavioral Medicine Clinic, she was 3 months post-laminectomy and her pain was worse than before her surgery. She was angry that the surgery had not helped, and depressed by her poor response to all prior treatments. She had been off work for nearly 6 months continuously and prior to that, intermittently for progressively longer periods. Her situation at home and work had deteriorated.

On the high risk model, the patient was positive on hypnotic ability, ANS lability, major life changes, lack of support systems and low coping skills. She was positive on 4 of the 5 high risk factors. Therapy focused on using her hypnotic ability to "abstract" the psychic trauma of the accident and the subsequent acute pain phase. This was done in a relaxed state (desensitization). Also, her hypnotic ability was used to reduce or block her learned occlusions with her body sensations, particularly her chronic pain sensations. EMG biofeedback was used to reduce her high level of ANS lability by training her muscular relaxation, particularly learning to reduce her chronic muscular tension in the neck, head and upper back. Operant conditioning was used to gradually increase her "up time" (time on feet, walking) and gradually phase her back into full-time work and its related activities. Her job, which the accident took away, was a major support system and coping skill that reinforced her self-esteem. She has always enjoyed her work—it kept her feeling productive and useful. Getting her back to work pushed her pain off the "front burner" and gave her something more enjoyable to do than experience pain. She now has been back to work for 9 months (she had been off work during the chronic pain period of 1½ years), is using only 1 or 2 aspirin a day and is off all prior medications. We will follow her for 5 years on decreasing-frequency basis.

(please see page 15 for patient's profile for the five high-risk factors).
Reproductive Medicine—Page 2
The first of two articles on human reproduction, prepared by members of the world-renowned Jones Institute for Reproductive Medicine, focuses on the diagnosis of infertility. Part two, a discussion of the therapeutic responses to infertility, will appear in the June 1985 issue of FORUM magazine.
The Howard and Georgeanna Jones Institute for Reproductive Medicine

Psychology—Page 12
A psychologist discusses his model for identifying persons at high risk for developing stress-related illness—a prominent disease form of the times.
Ian Wickramabeker, M.D.

Otolaryngology/Head & Neck Surgery—Page 18
A discussion of new attitudes toward swallowing disorders and why a multi-disciplinary approach is essential to the evaluation and management of this common complaint.
Gary L. Schechter, M.D.

Radiology—Page 8
Magnetic Resonance Imaging (MRI) is being touted as the most dramatic breakthrough in radiologic imaging since Roentgen discovered x-rays in 1895. Two radiologists explain the properties and potentials of MRI.
M. Reed Knight, M.D.
David L. Weaver, M.D., Ph.D.

Physical Rehabilitation—Page 24
An interdisciplinary approach to comprehensive rehabilitation provides support for the patient’s total lifestyle by teaching the patient to become as independent as possible. A physiatrist discusses this innovative treatment modality.
Daniel Dimitru, M.D.

FORUM is published by Norfolk General Hospital, a nonprofit, 644-bed tertiary care hospital located in the Eastern Virginia Medical Center. Questions regarding Norfolk General's services or comments and letters regarding FORUM, should be sent to FORUM Magazine, 600 Gresham Drive, Norfolk, Virginia 23507; (804) 628-3518.

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AN ALLIANCE HOSPITAL
Welcome to the second issue of FORUM; we hope that you will enjoy it.

The cover story for this issue focuses on the diagnosis, prognosis and evaluation of infertility. Prepared by infertility experts at the Howard and Georgeanna Jones Institute for Reproductive Medicine, the report—the first of two—examines the numerous causes of infertility. A second report, which will appear in the June, 1985 issue of FORUM, will address the therapeutic responses to infertility.

Also in this FORUM is an article on magnetic resonance imaging (MRI). Two radiologists discuss the operation, functions and potential for this new diagnostic modality, which will be available to the medical community of eastern Virginia by summer. Norfolk General Hospital was the first medical facility in Virginia to receive state approval to purchase the sophisticated diagnostic equipment for clinical as well as research purposes.

This issue also contains articles written by specialists on the ingredients for successful rehabilitation, the causes and treatments of swallowing disorders, and a model to identify stress-related diseases.

We hope that you will find this issue interesting and informative. If you have any questions, suggestions or criticisms, please complete the reader response card, or contact me or Ginger France, managing editor. We would like to hear your comments and ideas.

James P. Baker, M.D.
Medical Editor

On the cover:
A fertilized egg ready for transfer 48 hours after fertilization.