BACK SCHOOL: ORGANIZATION, METHODS AND PRINCIPLES

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Back Schools have been initated and developed primarily to help back-injured patients return to work or a normal life pattern, and secondarily to prevent future injury through patient education and community outreach. I have been involved with one since 1979. The Instructional Course Lectures on Low Back Treatment[1-4] were the catalysts stimulating our endeavor. The following is an overview of the organization, methods and principles used in developing this Back School.

The Back School utilizes the health team approach that includes nurses, physical and occupational therapists, biofeedback therapists, psychologists and physicians. They all may play a role in either hospital or outpatient care of the back-injured patients. Diagnosis and treatment is initiated by the physician either in the office or in the hospital. The back-injured patient's complaints usually fall into one or more of the following categories:

1. altered sensation, e.g. numbness, tingling or pain in the back or legs;
2. limited mobility, e.g. stiffness or catching in the back or hip (buttock);
3. decreased strength, e.g. weakness in the back or legs; and
4. diminished function, e.g. change in bowel, bladder or sleep habits; or inability to bend, stoop, lift, sit, stand, walk or work.

A pain drawing is usually done by the hospitalized patients. It may also be done by outpatients in the physiotherapy department or the physician's office. This helps the patients define and communicate their pain characteristics to the health care team and it helps the physician categorize the patient's perception of pain into either pathophysiologic or psychologic patterns. The team substantiates the subjective complaints with objective findings. The various team member's assessments or diagnoses are correlated and synthesized by the physician, the team leader.

Initial treatment is conservative and includes one or more of the following:

1. restricted activities or bed rest;
2. medication(s);
3. physiotherapy; and
4. biofeedback training.

To prevent behavioral changes from prolonged bed rest, patients' requests for bathroom or shower privileges are usually granted, but other activities are limited. Medication is used as indicated to reduce inflammation and muscle spasm, to relieve nausea, vomiting or pain, and to promote bowel function and sleep. Physiotherapy (various combinations of ice packs, moist hot packs, ultrasound diathermy, massage, traction, neuroprobe and/or transcutaneous electrical stimulator) may be initiated either as an outpatient after the acute pain symptoms have subsided or as an inpatient at the bedside. These modalities are frequently helpful in relieving or controlling pain. The patient may be instructed to use the TENS or traction, and if effective, manage and control his or her pain without narcotics or other pain medications. Biofeedback training has been used for pain management in selected cases.

Educational materials such as the manual on "Back Care"[5] and the soundslide program on "Back School"[6] are offered to patients by the physiotherapy and education departments. These materials are discussed with the patients by the nurses, physical therapists, or physician. There is no formal or written examination.

When and if pain is controlled, increased activities and therapeutic exercises are initiated to improve mobility and strength. These may be initiated by the patient or the physician and then monitored by nurses, physical therapists and physicians. Hot showers or hydrotherapy in a whirlpool or Hubbard tank are sometimes helpful in improving mobility and allowing progressive strengthening exercises. Williams exercises for the back[5-7] and modified DeLorme progressive resistance exercises for the legs[8] are started. Situps, pushups and wall slides are introduced later as tolerated.

Improved function is simulated through a modified obstacle course in physical therapy including the exercise bicycle, the isokinetic exercise apparatus and weight lifting with barbells. The energy costs of pedaling a bicycle at various loads are measured in terms of METS, the ratio of cardiac work (or metabolism) during the activity compared to the basal value when resting supine[9]. A submaximal exercise test uses a target heart rate which is 70 per cent of the predicted maximal heart rate. Work on the isokinetic apparatus (Orthotron) during contractions of the knee extensors and flexors at varied repetitions per minute are measured in foot-pounds of torque[10]. We do not use the

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recording device displaying maximal isokinetic torque curves. Weight lifting performance is measured by weight and repetitions. A large barbell may be lifted from floor to waist and waist to chest. For heavy weight lifting, the need for a corset or further abdominal muscle strengthening exercises is assessed. During these activities, it is important to observe patient tolerance, postural and lifting techniques, and achievement level. These testing methods allow for performance analysis and they provide, if necessary, a rational basis for work restriction.

Finally and concurrently, just as the student is evaluated by the teacher, the patient's attitude, application and achievement are assessed by the health care team. Physical achievement can be documented by physical or occupational therapists, nurses, and the physician. Attitude and application can be observed and, if indicated, they may be further assessed by Minnesota Multiphasic Personality Inventory (MMPI) testing, psychologic interview or psychiatric consultation to evaluate the patient's motivation toward return to work or a normal life pattern.

If initial conservative treatment fails, alternatives include further diagnostic workup (eg. bone scan, CT scan, myelogram, MMPI, etc.), continued but modified conservative treatment, injections, surgical procedures, or no further treatment with possible vocational retraining.

The unifying principle of the whole man concept was expounded by Beals and Hickman[11] in 1972 when they discovered patients return to work when they feel able to do so, and not when they are medically ready. These authors studied vocational, psychologic and physical factors and found both physical and psychologic factors play an important role in the return to work of both extremity-injured and back-injured patients. They attributed greater complexity of psychopathologic findings in the back-injured patient as the reason why psychologists rather than physicians were more accurate in predicting return to work in this group of patients. They concluded that their studies "document the importance of psychological evaluation for optimum rehabilitation effort and suggest that the whole man concept is a useful, and perhaps necessary, consideration in the rehabilitation of the industrially injured workman"[11]. Although their study was confined to the industrially injured worker on compensation, they believed the various factors applied to other patients as well. These statements are a direct challenge to the practitioner who wishes to limit his evaluation and treatment to the pathophysiologic process in back-injured patients while ignoring the psychosocial processes.

In conclusion, the development of the Back School has been educational, enlightening and intellectually challenging. It has the potential to be a valuable adjunct in diagnosis and treatment of back-injured patients and the prevention of further injuries. It has proved helpful in patient evaluation and selection before surgery or vocational retraining. Our Back School has been modestly successful in its efforts.

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