NOTES

The purpose of this Clinician's Guide is to further explain or remind you about an issue related to your health care practice. This handout is a general guide only.

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The Role of Physical Agent Modalities in Therapy

Physical agent modalities (PAMs) have been a component of therapy services for many years. PAMs traditionally include therapeutic ultrasound, electrical stimulation, shortwave diathermy (electromagnetic energy) and light therapy. PAMs work by transmitting low, medium and high frequency energies into tissues to stimulate them in ways that are not possible with voluntary patient activity or manual therapy techniques.

PAMs have been extensively researched for a variety of clinical, physiological and diagnostic specific indications. While some studies have not demonstrated efficacy for specific dosages, devices or applications, the preponderance of evidence validates that PAMs are relevant and acceptable therapy interventions. The efficacy of PAMs is further corroborated by the assignment of specific therapeutic uses by the FDA, and positive coverage decisions by the Centers for Medicare and Medicaid Services.

Most often, modalities are adjunctive to a comprehensive plan of therapy care. They may be particularly effective in the earlier stages of the treatment plan for numerous conditions, including post-operative total knee or hip arthroscopy. PAMs allow therapists to treat these symptoms and facilitate the introduction of other therapy interventions to achieve more rapid functional gains. With this example, certain electrical stimulation waveforms might also be employed to recruit type II muscle fibers to address muscle atrophy and increase circulation for tissue healing. Additionally, neuromuscular electrical stimulation (NMES) is used for neuromuscular re-education.

PAMs can also be useful in the treatment of more complex conditions such as wounds, urinary incontinence and neuromuscular disease. With chronic wounds, a high volt pulsed current may be used to increase local circulation and facilitate closure of pressure ulcers. Electrical stimulation for wounds recently received an "A Rating" from The National and European Pressure Ulcer Advisory Panels, surpassing all other treatment options including negative pressure wound therapy, pressure relieving devices, and all forms of wound dressings. A general summary on the clinical role of commonly used physical agent modalities is as follows:

Electrical stimulation (specific FDA assignments): For relaxation of muscle spasm, prevention or retardation of disuse muscle atrophy, increasing local circulation, muscle re-education, maintaining or increasing ROM, and for relief of chronic pain, intractable pain, and/or acute, post-traumatic pain. With correct dosing and methodologies, research has shown that electrical stimulation preferentially recruits type II muscle fibers and assists with neuromuscular re-education. This is important for deconditioned and post-operative patients who are unable to generate meaningful voluntary muscle contractions and exercise efforts.

Therapeutic ultrasound (specific FDA assignments): For pain reduction, relaxation of muscle spasm, treatment of contractures, improving local circulation to accelerate healing, increasing collagen extensibility, treatment of tendonitis, arthritis, decreasing joint stiffness and bursitis. Ultrasound can facilitate tissue healing and increase localized tissue temperature.

Shortwave diathermy (specific FDA assignments): For reduction of pain, reduction of edema, joint stiffness, relaxation of muscle spasm, chronic inflammatory conditions, increasing range of motion, decreasing joint contracture and increasing local circulation. Diathermy can reduce swelling, facilitate tissue healing, and increase tissue temperature.

Light therapy (specific FDA assignments): For reduction of pain, joint stiffness, increasing range of motion and increasing local circulation. Research has shown that light therapy can increase local circulation, relieve stiffness, promote relaxation of muscle tissue and provide temporary relief of minor muscle and joint pain.

PAMs cannot replace therapists, but do represent valuable clinical tools that can enhance outcomes for a range of conditions. The key to effective PAM use is the utilization of high quality devices and a thorough understanding of indications for use. Therapists should also receive training on the selection of proper device parameters for the patient's specific condition. ■

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