Complementary and Alternative Medicine
In 1999, National Institutes of Health opened the National Center for Complementary and Alternative Medicine. 69% Americans use CAM; 34 US medical schools offer courses in CAM.

Highfield et al showed that an interdisciplinary team of CAM clinicians and educators can be integrated into an urban pediatric teaching hospital to provide CAM medical education and clinical services. 2100 consults, including acupuncture, massage, holistic pediatrician, relaxation therapies, biofeedback, hypnosis, and bio-pharmaceutics (herbal meds) were performed in the pediatric setting. In a survey of 43 institutions on the use of complementary and alternative medicine in pediatric pain management, Lin et al found that 38 offered CAM care. Therapies provided included: biofeedback 65%, guided imagery 49%, relaxation therapy 33%, massage 35%, hypnosis 44%, acupuncture 33%, art therapy 21% and meditation 21%. In another study on CAM, 40% of adults and 20-30% of children have used integrative techniques. Pediatric patients included teenagers and children with chronic or recurring conditions eg cancer, asthma, cystic fibrosis. These therapies were utilized in addition to standard medical care.

Biofeedback
Principles of biofeedback will be reviewed. These include heart rate variability, which is believed to be a reflection of the balance of sympathetic and parasympathetic nervous systems. High variability is a sign of good health.
Low variability is an indicator of poor health – eg men with CAD with low variability are at higher risk of MI. Other measures frequently utilized in biofeedback include EEG, Galvanic Skin Response, EMG.
Conditions for which Biofeedback may be helpful include migraine headache, recurrent abdominal pain, procedural anxiety, recurrent hospitalization (eg oncology), fibromyalgia, and chronic regional pain syndromes. Efficacy studies range between 48-100%.

Mindfulness Meditation
Mindfulness Based Stress Reduction has shown consistent and strong level of effect size, and might enhance general features of coping with distress and disability in everyday life, as well as under more extraordinary conditions of serious disorder or stress. (Grossman et al.)

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Guided Imagery
Spontaneous, deliberate mental reconstruction of real or imaginary, using any/all senses.

Cognitive-Behavioral Techniques
Age appropriate explanations of what is causing pain and what they can do to influence it
Educate parents re: nature of pain/concrete ways they can help
Perception of control/understanding decrease fear/anxiety
   • Make pain as predictable as possible
   • Teach skills to influence pain
Describe cycle of thought – emotion—behavior, and acceptance / commitment model.

Massage therapy
Massage is a helpful adjuvant therapy in both acute and chronic pain. Effects include decreased pain, muscle relaxation, decreased spasm, improved sleep, increased ROM, decreased medication requirement. Mechanisms of action may include both regional muscle relaxation as well as endorphin release.

Common features of mind/body therapies include an increased sense of wellbeing, lowered sympathetic arousal, increased parasympathetic tone, decreased pain, and improved coping
In adults, these therapies have been shown to have improved outcomes in patients with metastatic breast cancer (Sephton et al)

Acupuncture
Acupuncture involves the placement of small needles, usually 30G, in the skin at various locations for the purpose of achieving a therapeutic result.
It is based on traditional concept of Taoism, characterized as the “Way”, emptiness, or potential. Being in harmony with the Tao is goal of human life and health. This is different from the modern concept of development as attainment of more complexity and sophistication.
A key concept in acupuncture and traditional oriental medicine is that of Qi, or energy in the body. It can also be regarded as capacity or reserve of the body.
Chinese Medicine is based on the modeling energetic, dynamic interactions in the body. In the traditional model, the efficacy of acupuncture or other traditional therapies is based on restoring the energetic balance of complex physiological systems. This is analogous to debugging a software program, versus getting a new hard drive.

Physiologic Basis of Acupuncture Action
The physiologic basis of acupuncture action will be reviewed. This includes local changes at acupoints, endorphin and dynorphin release in the central nervous system, decreased cortisol, and changes in brain perfusion as seen by functional MRI. Though physiologic changes can be measured, the significance and relationship to clinical outcome is uncertain at this time.
Clinical outcome studies –

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Chronic pain, including chronic recurrent abdominal pain, migraine headache, Nausea and vomiting, perioperative pain and vomiting, anxiety, and osteoarthritis and cancer pain are some indications. Acupuncture is easy to use in children, but does require adequate preparation, and patient selection. Children need to trust the practitioner, but quickly adapt and may actually enjoy the treatment.

Conclusions
Mind/Body Therapies are a useful adjunct to traditional medical management and can be utilized both in the inpatient and clinic setting. Acupuncture can be useful in management of refractory pediatric pain problems, both in the acute and chronic setting. Adequate patient and family preparation must be performed. Further studies are needed to evaluate its usefulness.

References

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