ARCHIVES OF DERMATOLOGY

A Multicenter Study on the Use of Pulsed Low-Intensity Direct Current for Healing Chronic Stage II and Stage III Decubitus Ulcers

Background and Design: Pulsed low-intensity direct current (300 to 600 μA) has been used in a double-blind placebo multicenter study in the treatment of stage II and stage III chronic decubitus ulcers.
Results: Seventy-four ulcers were treated in four centers. Forty-three patients were selected for the experimental group, and 31 control subjects used the sham instrument (placebo group). In the treated group, 25 ulcers (58%) healed in 8 weeks, whereas in the placebo group, only one ulcer (3%) healed and most ulcers increased in size. Statistical analysis, based on surface area and ulcer depth before and after treatment, showed that low-intensity direct current had a significant influence on the healing rates for these ulcers ($P<.0001$). Experiments with guinea pigs (n=10) showed that pulsed low-intensity direct current caused a rapid calcium flux in the epidermis.
Conclusions: Pulsed low-intensity direct current represents a useful approach for the treatment of stage II and stage III chronic decubitus ulcers by increasing the healing rate. The growth of fibroblasts and keratinocytes may be enhanced by pulsed low-intensity direct current due to changes in calcium homeostasis.

(1993;129:999-1009) John M. Wood, PhD, et al, Clinical Biochemistry, University of Bradford, Biomedical Sciences, Bradford, W Yorks, United Kingdom BD7 1DF.

ARCHIVES OF INTERNAL MEDICINE

Effectiveness of a 16-Hour Transdermal Nicotine Patch in a Medical Practice Setting, Without Intensive Group Counseling

Background: To determine the effectiveness of a 16-hour transdermal nicotine patch in assisting smokers to stop smoking, when used in a primary medical practice model.
Methods: A single-site, randomized, double-blind, outpatient, parallel-group, placebo-controlled trial consisting of 220 regular, otherwise healthy cigarette smokers. Patients participated in a 12-week patch treatment phase plus a 6-week tapering phase. A standard medical office model of physician intervention, such as could easily be employed by any primary care physician, without need for any special psychological services, training, or skills, was the behavioral intervention.
Results: Sustained abstinence, determined at each visit by absolutely no cigarette use, carbon monoxide level of 9 ppm or less, and serum cotinine level of 15 ng/mL or less (after week 18), was significantly greater for those patients receiving the active nicotine patch than for those receiving the placebo patch: the percent of patients not smoking at 6, 12, 18, 26, and 52 weeks was 61% vs 35%, 45% vs 26%, 41% vs 16%, 34% vs 12%, and 25% vs 9%, respectively ($P<.001$). This 16-hour nicotine patch produced no systemic side effects and minimal skin irritation.
Conclusions: Nicotine replacement therapy via a 16-hour transdermal nicotine patch provided safe and effective treatment for tobacco-dependent patients. One-year sustained nonsmoking rates were nearly three times higher in the active than in the placebo condition, when the patch was used in an easily applicable standard medical practice setting, without the need for psychological interventions. This outcome was as good as or better than results achieved by nicotine patches using behavior modification or group counseling.

(1993;153:1881-1890) David P. L. Sachs, MD, et al, Palo Alto Center for Pulmonary Disease Prevention, 750 Welch Rd, Suite 200, Palo Alto, CA 94304-1509.

Concurrent Use of Nonsteroidal Anti-inflammatory Drugs and Oral Anticoagulants Places Elderly Persons at High Risk for Hemorrhagic Peptic Ulcer Disease

Background: Although joint use of nonsteroidal anti-inflammatory drugs (NSAIDs) and oral anticoagulants may increase the risk of gastrointestinal tract hemorrhage in elderly persons, no epidemiologic studies have been performed to quantify this risk.
Methods: We performed a retrospective cohort study of Tennessee Medicaid enrollees aged 65 years or older from 1984 through 1986. A total of 103 954 individuals con-

tributed 209 066 person-years of follow-up, including 2203 person-years of current oral anticoagulant use, to the study.
Results: Of the cohort members, 1371 had confirmed hospitalizations for peptic ulcer disease. Of these, 661 (48%) presented with frank hematemesis or melena and thus met the definition for hemorrhagic peptic ulcer disease. Among current users of oral anticoagulants, the adjusted incidence of hospitalization for peptic ulcer disease was 4.3 per 1000 person-years, and the adjusted incidence of hospitalization for hemorrhagic peptic ulcer disease was 10.2 per 1000 person-years. Compared with nonusers, current anticoagulant users were at increased risk for hospitalization for ulcer disease (relative risk, 2.2; 95% confidence interval, 1.6 to 3.1), primarily due to the increased risk of hospitalization for hemorrhagic ulcers (relative risk, 3.3; 95% confidence interval, 2.3 to 4.9). Compared with nonusers of either drug, the relative risk of hemorrhagic peptic ulcer disease among current users of both anticoagulants and NSAIDs was 12.7 (95% confidence interval, 6.3 to 25.7). However, the prevalence of NSAID use among anticoagulant users was 13.5%, the same as in those who were not using anticoagulants.
Conclusions: The nearly 13-fold increase in the risk of developing hemorrhagic peptic ulcer disease in concurrent users of oral anticoagulants and NSAIDs suggests that NSAIDs should be prescribed with extreme caution in patients undergoing anticoagulation therapy.

(1993;153:1665-1670) Ronald I. Shorr, MD, MS, et al, Division of Pharmacoepidemiology, Department of Preventive Medicine, Vanderbilt University School of Medicine, Nashville, TN 37232-2637.

ARCHIVES OF NEUROLOGY

Propranolol and Amitriptyline in Prophylaxis of Migraine: Pharmacokinetic and Therapeutic Effects

Objectives: To determine if the effectiveness of propranolol hydrochloride and amitriptyline hydrochloride are correlated with blood levels and/or with standardized test of pharmacologic effect and to determine which clinical variables are predictors of response to one or the other medication.
Design: Three-month modules of treatment with each drug and placebo in a randomized crossover design. Headache scores from daily diaries were calculated at monthly intervals, as were simultaneous blood levels of drug, supine and standing blood pressure, pulse rise with exercise, and salivary flow.
Setting: Outpatient headache clinic at the University of Kansas Medical Center, Kansas City.
Patients: Thirty consecutive patients with a history of frequent migraine.
Main Outcome Measurements: From headache scores, patients were classified as either propranolol responders, amitriptyline responders, or nonspecific responders. Clinical variables as predictors of response to medications were studied, as were effects on frequency, duration, and/or severity of headache.
Results and Conclusions: No significant correlations were found between changes in headache score and blood level of drug or change in any of the physiologic measurements. Amitriptyline significantly reduced the severity, frequency, and duration of headache attacks; propranolol reduced the severity of attacks only. Amitriptyline response was correlated with female gender and baseline headaches of shortest duration and of highest frequency. Propranolol response was associated with attacks of greatest duration at baseline and with low pulse rise with exercise at baseline. Nonspecific response was associated with male gender and most frequent headaches by history.

(1993;50:825-830) Dewey K. Ziegler, MD, et al, Department of Neurology, University of Kansas Medical Center, 3901 Rainbow Blvd, Kansas City, KS 66160-7314.

ARCHIVES OF SURGERY

Accuracy of Ultrasound in the Diagnosis of Acute Appendicitis Compared With the Surgeon's Clinical Impression

Objective: To compare the accuracy of the surgeon's clinical diagnosis of acute appendicitis with that of an ultrasonographic examination of the abdomen.
Design: Prospective trial.
Setting: US Naval Hospital, San Diego, Calif.
Patients: One hundred ten patients admitted to the hospital with suspected appendicitis from May 1990 to June 1992.
Intervention: Symptoms and signs for each patient were recorded, along with the surgeon's clinical impression of immediate surgery or observation. The patient then underwent an ultrasound examination performed by a staff radiologist. On the basis of the ultrasound findings the patient was placed into one of three categories: appendicitis, normal examination results, or other conditions. Patients with an ultrasound-based diagnosis of appendicitis proceeded to the operation, regardless of the surgeon's clinical impression. Those with other conditions diagnosed with ultrasonography were treated as was appropriate for the condition.

Results: The ultrasound-derived diagnosis of appendicitis had a sensitivity of 85.5%, a specificity of 84.4%, a positive predictive value of 88.3%, a negative predictive value of 80.1%, and an overall accuracy of 85.0%. The surgeon's clinical impression at the time of admission had a sensitivity of 62.9%, a specificity of 82.2%, a positive predictive value of 82.9%, a negative predictive value of 61.7%, and an overall accuracy of 71.2%.
Conclusion: The overall accuracy of ultrasonography in the diagnosis of appendicitis was statistically superior to that of the surgeon's clinical impression ($P<.0001$). However, 24% of the patients with normal ultrasound findings were ultimately found to have appendicitis at operation, emphasizing the point that ultrasonography cannot be relied on to the exclusion of the surgeon's careful and repeated evaluation.

(1993;128:1039-1046) CDR David S. Wade, MC, USN, et al, Department of Surgery, Naval Hospital Oakland, Oakland, CA 94627-5000.

The Magnitude of Acute and Chronic Alcohol Abuse in Trauma Patients

Objective: To assess the incidence of acute alcohol intoxication and the proportion of trauma patients with evidence of chronic alcohol abuse.
Design: Prospective cohort study.
Setting: Regional level I trauma center.
Participants: Patients aged 18 years and older admitted with blunt or penetrating trauma.
Main Outcome Measures: Admission blood alcohol concentrations (BACs), the Short Michigan Alcohol Screening Test (SMAST), and biochemical markers for chronic alcohol abuse.
Results: Of the 2657 patients enrolled, 47.0% had a positive BAC and 35.8% were intoxicated (BAC 100 mg/dL) on admission to the emergency department. Intoxicated patients were more likely to be 25 to 34 years old, male, and nonwhite; the highest proportion of intoxicated patients was among victims of stab wounds. Three fourths of acutely intoxicated patients had evidence of chronic alcoholism as indicated by a positive SMAST, and 25% to 35% of acutely intoxicated patients had biochemical evidence of chronic alcohol abuse.
Conclusions: The high prevalence of both acute intoxication and chronic alcoholism in trauma patients indicates the need to diagnose and appropriately treat this pervasive problem in trauma victims.

(1993;128:907-973) Frederich P. Rivara, MD, MPH, et al, Harborview Injury Prevention and Research Center, 325 Ninth Ave, ZX-10, Seattle, WA 98104.

AMERICAN JOURNAL OF DISEASES OF CHILDREN

Simultaneous Administration of a Diphtheria and Tetanus Toxoids and Acellular Pertussis Vaccine With Measles-Mumps-Rubella and Oral Poliovirus Vaccines

Objective: To compare the safety and immunogenicity of Lederle Laboratories' (Pearl River, NY) diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine with diphtheria and tetanus toxoids and whole-cell pertussis (DTwP) vaccine when administered simultaneously with measles-mumps-rubella (MMR) vaccine and trivalent oral poliovirus (OPV) vaccine at 15 to 16 months of age.
Design: Randomized and double-blind.
Setting: Two general pediatric practices.
Participants: Ninety-seven infants, aged 15 to 16 months, who had received three previous DTwP immunizations.
Selection Procedures and Interventions: Healthy children received the DTaP or DTwP vaccine. Infants received the MMR vaccine at a separate site and the OPV vaccine concurrently. Blood was obtained on day 0 and at 6 weeks. Adverse events were recorded by parents at specified times after immunization.
Measurements/Results: Within 3 days of immunization, DTaP vaccine recipients had less fever, drowsiness, and irritability ($P=.01$, .O4, .01, respectively). They also experienced less tenderness, erythema, and induration (.001, .001, and .002, respectively). There was no difference in the frequency of adverse reactions 6 to 14 days after immunization. Enzyme-linked immunosorbent assays were used to determine all antibody values. Antibody responses to filamentous hemagglutinin and pertussis toxoid were significantly greater in the DTaP group ($P=.0001$ and .02, respectively). Immune responses to the other measured antigens were similar.
Conclusions: Simultaneous administration of the Lederle DTaP with MMR and OPV vaccines did not interfere with antibody response to pertussis antigens measured or measles, mumps, or rubella viruses and was associated with fewer local and systemic adverse events during the first 3 days following immunization when compared with the simultaneous administration of the DTwP, OPV, and MMR vaccines. We conclude that the DTaP vaccine can be administered at 15 months of age concurrently with the MMR and OPV vaccines.

(1993;147:854-857) Edward P. Rothstein, MD, et al, 711 Lawn Ave, Sellersville, PA 18960.