

PROBLEMS WITH HORIZONTAL VISUAL ANALOG SCALES IN THE ELDERLY. Kristin M. Gowin, Ira Katz, JA Grisso, HR Schumacher Jr., University of Pennsylvania School of Medicine, Philadelphia, PA 19104.

Self-administered questionnaires are useful tools in clinical practice for baseline assessment of patients and to follow the effects of treatment on the patient's functional status. Visual analog scales (VAS) and Likert scales are often used and have been recommended by the ACR as tools to monitor patients in clinical trials. (A&R June 1993). VAS are 10 or 15 cm anchored lines with descriptors on either end such as "no pain" and "pain as bad as it could be" for the pain scale. The patient is asked to mark an X on the spot that corresponds to his perception of the symptom on the spectrum presented. Likert scales are scales with graduated descriptors such as mild, moderate, severe, very severe for the pain scale. The patient is asked to pick the descriptor that most closely matches his symptom.

A questionnaire with horizontal VAS or Likert scales for pain and health satisfaction was administered to a group of patients as part of a study on fibromyalgia in the elderly. The patients also completed information on demographics, level of education, exercise, pain, sleep, morning stiffness, the HAQ disability index and a body representation pain diagram. 55 patients were tested; 29 patients with the VAS and 26 with the Likert scales. The patients were given written instructions only. The mean age of the patients was 72.5 years old (range 55-99) and the mean level of education was 13.1 years (range 5-20). There were no significant differences in age, time to complete the questionnaire, level of education, HAQ score or total percentage of questions correctly completed between patients given the VAS or Likert scales. In the patients who responded affirmatively to having pain, 13 of 17 patients (76%) did not fill out the pain VAS correctly as opposed to 2 of 15 patients (13%) with the pain Likert scale ($p=0.0002$). On the health satisfaction scale, 6 of the 29 patients (21%) did not fill out the VAS correctly as opposed to 2 of 26 (8%) patients with Likert scale ($p>0.1$). These results suggest that the VAS may not be the best instrument for a single measurement of pain in elderly patients. Previous studies have suggested that elderly patients may have perceptual differences that make horizontal VAS difficult for them to complete. Likert scales may be easier for the patient to understand thus yielding more accurate information.

ARHP Abstract Session 44, Osteoarthritis

Monday, October 21, 1996, 9:45 AM-10:45 AM

HISTORY OF KNEE SURGERY INCREASES THE ODDS OF KNEE OSTEOARTHRITIS: DATA FROM THE BALTIMORE LONGITUDINAL STUDY OF AGING (BLSA). M. Lethbridge-Cejku and M.C. Hochberg, University of Maryland School of Medicine, W.W. Scott, Jr., The Johns Hopkins Medical Institutions, and C.C. Plato and J.D. Tobin, Gerontology Research Center, National Institute on Aging, Baltimore, MD 21224.

The association between prior knee surgery and current radiographic knee osteoarthritis (OA) was studied in 545 Caucasian men and 350 Caucasian women in the BLSA who had bilateral knee radiographs obtained between 1985 - 91. 36 subjects (24 men and 12 women) had knee surgery prior to the knee x-ray (1 to 55 years). Surgeries included: meniscectomy (19), arthroscopy (13), arthrotomy (2), arthroplasty (1), and osteotomy (1). Cases of OA were defined as 1) KL: Kellgren-Lawrence grade 2-4 (grade 1 excluded); 2) OST: presence of a definite osteophyte; and 3) JSN: presence of joint space narrowing. Analyses were knee-specific: i.e., the same knee that underwent surgery was used in the analysis, and in subjects with no surgery, the most severely affected knee was used. Separate univariate analyses showed a significant association between prior knee surgery and knee OA (KL, OST, and JSN) ($p \leq 0.0001$). Multivariate logistic regression models, adjusting for age at x-ray, body mass index, gender, and smoking status, demonstrated increased odds of knee OA among those subjects who had prior knee surgery.

Outcome	Odds Ratio	95%CI	95%CI
KL	108.4	12.8	916.8
OST	15.4	5.9	39.8
JSN	12.5	5.5	28.3

The higher odds of KL compared to OST reflect the lower likelihood of a subject with prior surgery remaining normal on the KL scale. Age and body mass index were both significant in all models; gender and smoking status were not. Further adjustment for years since surgery did not appreciably change the results. These data demonstrate that prior knee surgery is significantly associated with radiographic knee osteoarthritis, although the indication for surgery may be a contributing or confounding factor.

VALGUS BRACING FOR THE OSTEOARTHRITIC KNEE. James C Otis, PhD, Sherry I Backus, A PT, Russell F Warren, MD, Thomas I Wickiewicz, MD, The Hospital for Special Surgery, New York, NY 10021, Fabian E Pollo, PhD, Baylor College of Medicine, Houston, TX 77030

To reduce medial compartment load, the concept of valgus bracing was developed in which a knee brace which applies valgus correction about the knee is utilized. During gait the knee joint is subjected to a varus moment which shifts joint load to the medial compartment. In patients with medial compartment osteoarthritis (OA) the higher compressive load in the medial compartment will intensify pain and may contribute to the degenerative process. The objectives of this study were to determine the load sharing capabilities of the brace and to estimate the effect on medial compartment force. Eleven subjects were fitted with an adjustable Generation II Unloader brace. Inclusion required presentation with isolated medial compartment OA, a neutral or varus ($0 - 10^\circ$) alignment, and no ligamentous instability. Criteria for exclusion were history of knee surgery other than arthroscopic debridement or meniscectomy, or a flexion contracture. Strain gauges were applied to each brace and calibrated. Knee kinematics and kinetics were collected during gait using a six-camera video system and two force platforms. Three trials were averaged for the following conditions: unbraced; as fitted with a nominal 4° of valgus correction; with increased tension on the dynamic force strap; and with a 4° and an 8° correction from a zero load position determined in laboratory. A model which factors in the gravitational and muscular contributions to the joint reaction force and accounts for the load shift due to the varus moment was used to estimate the medial compartment force. Visualanalog scales for pain and function were used. With the nominal 4° valgus correction applied the brace took up on average 10% of the external varus moment applied about the knee. Based on visual-analog scales, pain decreased in 9 of 11 and function improved in 10 of 11 subjects. Medial compartment force was increased in 5, decreased in 4 and unchanged in 2 subjects. Increasing correction to 8° increased the load sharing. Valgus bracing for patients afflicted with medial compartment OA has demonstrated success with respect to functional improvement and symptomatic pain reduction. The estimates of medial compartment loads were variable in their outcomes. Increased medial compartment loads were associated with increased flexion moments during gait, which require greater quadriceps force. The eleven subjects analyzed with the instrumented brace demonstrated moment-sharing capabilities which support the concept of valgus bracing.

Supported by Generation II, USA

QUALITY OF SLEEP FOR OSTEOARTHRITIS PATIENTS USING PHARMACEUTICALS.

Angeline M. Carlson, PhD, RPh, Lisa S. Morris, PhD, RPh, Eleanor M. Perfitto, PhD, RPh, Marie Sanda, MD, Ivan J. Yavara, MD, PhD, and Joseph M. Lynch, MD. Data Intelligence and Wyeth-Ayerst Research, Eden Prairie, MN 55344 and Radnor, PA 19335.

While the value of sleep in maintaining good health and in overcoming illness is generally accepted, limited research has focused on quality of sleep in arthritis. Studies in rheumatoid arthritis have found these patients to have sleep disturbances that may be associated with fatigue and depression. Few studies have focused on quality of sleep in osteoarthritis (OA) patients. Drug therapy for OA may improve quality of sleep. Such a result could be of particular importance to the patient.

Using data from a clinical trial of a non-steroidal anti-inflammatory drug (NSAID) for the treatment of OA of the knee, patient-perceived quality of sleep related to OA pain was studied. The trial was a 24-week, double-blind study of two formulations of an NSAID (etodolac), extended release and conventional. The extended release was similar in efficacy to the conventional formulation. Quality of sleep was assessed at baseline and at weeks 1, 2, 4, 8, 12, 16, and 24 of therapy. Patients were asked about sleep quality in the prior week. At baseline, patients had undergone a washout period.

The percent of patients reporting having slept well during the prior week was greater after NSAID therapy when compared to baseline. At baseline, only 42% of patients reported having slept well. After only one week of therapy and throughout the remaining assessments, 70% reported having slept well.

At each assessment, the number of patients reporting improved quality of sleep compared to baseline was tested using McNemar's Test for the Significance of Changes. Significant results ($p < 0.05$) were found at all assessments regardless of treatment group. Thus, patients reported an improvement in quality of sleep with the use of NSAID therapy.

The data suggest that the use of a pharmaceutical agent, such as an NSAID, to treat osteoarthritis of the knee can also result in significant improvement in the perceived quality of sleep. Ultimately such a change may have a positive influence on other patient-centered outcomes such as satisfaction with care and improved quality of life.

Sponsored by Wyeth-Ayerst Research

RADIOGRAPHIC FEATURES OF KNEE OSTEOARTHRITIS AND KNEE PAIN PREDICT TOTAL KNEE REPLACEMENT: DATA FROM THE BALTIMORE LONGITUDINAL STUDY OF AGING (BLSA). M. Lethbridge-Cejku and M.C. Hochberg, University of Maryland School of Medicine, W.W. Scott, Jr., The Johns Hopkins Medical Institutions, and C.C. Plato and J.D. Tobin, Gerontology Research Center, National Institute on Aging, Baltimore, MD 21224.

Factors predictive of total knee replacement surgery were analyzed in 126 Caucasian men and 51 Caucasian women in the BLSA who had bilateral, standing knee radiographs obtained between 1985 - 91, had definite radiographic knee osteoarthritis (OA), and completed symptoms questionnaires (mean age \pm SD: 69 ± 12 yrs). 11 subjects (7 men and 4 women) had a total knee replacement (TKR) 1-8 years after the knee x-ray. Factors tested for association with TKR outcome were 1) current knee pain; 2) Kellgren-Lawrence grade 3-4 (KL34); 3) Joint space narrowing (JSN); and 4) subchondral sclerosis. All analyses were knee-specific: i.e., the same knee that later underwent TKR was used in the analysis; in subjects with no TKR outcome, the most severely affected knee was used. Univariate analyses, with both sexes combined, showed a significant association between TKR and knee OA (Kellgren-Lawrence grade, osteophyte grade, JSN grade, and sclerosis [$p \leq 0.001$]), and between TKR and current pain ($p \leq 0.0001$). Separate multiple logistic regression models, adjusting for age at x-ray, body mass index, gender, and smoking status, demonstrated increased odds ratios [OR(95%CI)] of TKR among subjects with the following: Pain [14.0 (2.8, 68.9)]; KL34 [23.4 (4.4, 114.2)]; JSN [19.5 (2.3, 162.0)]; Sclerosis [19.2 (4.4, 82.8)]. In combined models (KL34 and Pain; Sclerosis and Pain; Sclerosis and JSN; Sclerosis, JSN and Pain), increased odds for TKR were found for each factor. The presence of KL34, JSN or Sclerosis without pain, did not show significant odds of TKR, but there were only 2 cases of TKR without knee pain at x-ray. Age, body mass index, smoking status and gender were not significant in any model. These data demonstrate that moderate-to-severe knee OA, joint space narrowing, and subchondral sclerosis, with concurrent knee pain, are all predictive of total knee replacement.

ARHP Abstract Session 47

Fatigue in Rheumatoid Arthritis and SLE

1409 Monday, October 21, 1996, 11:00 AM-11:45 AM

FATIGUE IN RHEUMATOID ARTHRITIS - THE ROLE OF PAIN, NEGATIVE SOCIAL SUPPORT, AND SELF-EFFICACY EXPECTATIONS

E Taal¹, RP Riemsma¹, JJ Rasker^{1,2}, EN Griep³, JMGW Wouters⁴, O Wiegman¹

¹ Dept. of Psychology, University of Twente, P.O.Box 217, 7500 AE Enschede, The Netherlands; ² Medisch Spectrum Twente, Enschede; ³ Medisch Centrum Leeuwarden; ⁴ St. Franciscus Gasthuis, Rotterdam.

Purpose: To determine the level of fatigue in patients with rheumatoid arthritis (RA), and the relationships of fatigue with disease and demographic variables, social support, and self-efficacy.

Methods: In 231 RA-patients and 131 healthy controls, we measured fatigue using a visual analog scale. Other variables were: physical function, pain, and affect measured with Dutch-AJMS2; disease activity as expressed by laboratory measures: ESR, Hb, Rheumatoid factor; comorbidities; disease duration; positive and negative social support; self-efficacy expectations about coping with consequences of RA, and about mobilizing support. Demographic variables were: age, sex, income, urbanisation grade, marital status, and education.

Results: RA-patients showed significantly higher levels of fatigue, controlled for demographics ($p < 0.001$) compared to controls. Urbanisation grade was the only demographic variable that correlated significantly with fatigue (0.16; $p < 0.01$). People with RA from rural areas showed less fatigue. Fatigue correlated significantly ($p < 0.001$) with physical function (0.38), pain (0.52), and affect (0.45). Both self-efficacy scales correlated strongly with fatigue (-0.47 and -0.30; $p < 0.001$). Positive social support showed no significant correlation, contrary to negative social support (0.28; $p < 0.001$). Comorbidities (0.15; $p < 0.02$) and disease duration (0.17; $p < 0.01$) showed significant but weak correlations with fatigue. ESR, Hb, and Rf showed no significant correlation with fatigue. In regression analysis pain, negative social support, self-efficacy about mobilizing support and self-efficacy about coping with symptoms of RA were the only significant predictors of fatigue, accounting for 37% of the variance in fatigue.

Conclusions: Fatigue is a major problem for RA-patients. Fatigue in RA-patients is strongly positive associated with pain and negative social support, and strongly negative associated with self-efficacy expectations about coping with symptoms of RA and mobilizing support.