HIV Disease and Distal Sensory Polyneuropathy (DSP)

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BACKGROUND
• Studies of patients with HIV disease have reported neuropathy prevalence ranging from 38% to 53%.1-4
• Individuals with HIV-related DSP typically experience pain, numbness, paresthesia, reduced quality of life compromised function, and episodic disability.5-6

Screening Tools for DSP Associated with HIV Disease1, 2


• Leeds Assessment of Neuropathic Symptoms and Signs (LANSS)
  - Combo of physical exam signs and patient symptom self-report
  - Sensitivity 82%; specificity 80%
• Neuropathic Pain Questionnaire (NPQ)
  - 12 numerical scale questions; formula derived score: Positive score predicts presence of neuropathic pain (sensitivity 67%; specificity 71%)
• Douleur Neuropathique 4 Questions (DN4)
  - Combo of physical exam and self-report of symptoms: Score of 4 (out of 10) or higher identifies neuropathic pain (specificity 83%; sensitivity 90%)
• painDETECT
  - 7 item self-assessment tool (score >19 = neuropathic pain: sensitivity 85%; specificity 80%)
• ID Pain
  - 6 yes/no questions (score >2 = neuropathic pain: sensitivity 73%; specificity 69%)
• Standardized Evaluation of Pain (StEP)
  - Combo of symptoms and exam signs, validated for pts with neuropathic low back pain
• Neuropathic Pain Scale
  - 7 numerical scale questions; used in studies examining effectiveness of pain treatments
• Neuropathic Pain Symptom Inventory (NPSI)
  - 12 numerical scale questions; used to assess efficacy of pain treatment and characterize symptoms
• Short Form McGill Pain Questionnaire 2 (SF-MPQ-2)
  - Items divided into 4 descriptor subscales; used to characterize chronic pain and measure response to treatment

Summary of Acupuncture Studies

Bottom Line: Re-analysis of data from one RCT found lower pain intensity in acupuncture compared to placebo. (Note: In the U.S., acupuncture is not practiced by P/Ts unless they have concurrent certification as an acupuncturist.)
Physical Therapy and Acupuncture for HIV Associated Distal Sensory Polyneuropathy (DSP): A Systematic Review

Summary of Physical Therapy Studies

Bottom Line: Low level evidence suggests PT may help improve pain, gait, function, and sensation, but rigorous RCTs are needed to confirm such findings.

Quality of Life and Self-Reported Lower Extremity Function in Adults with HIV-related Distal Sensory Polyneuropathy

• Purposes
  • Compare QOL and self-reported lower limb function in HIV+ patients with and without DSP
  • Determine the degree to which self-reported lower limb function predicts QOL
  • Evaluate agreement (concordant validity) between the Lower Extremity Function Scale (LEFS) and the Lower Limb Functional Index (LLFI) in this population
  • Describe utilization of health care resources for pain management in HIV+ patients with and without DSP.

Quality of Life and Self-Reported Lower Extremity Function in Adults with HIV-related Distal Sensory Polyneuropathy

Methods

• Participants were patients at an infectious disease practice in southern NJ / summer 2012
• Inclusion criteria: history of HIV disease, ambulatory, ability to read and write in English.
• Exclusion criteria included active opportunistic infections or uncontrolled psychiatric disorders
• Data collection:
  • Demographic questionnaire and chart review
  • MOS-HIV (Physical Summary Score and Mental Summary Score)
  • LEFS
  • LLFI

  LEFS and the LLFI data was expressed as a percentage with the same range and direction (0%=maximally impaired function; 100%=full function).

Bottom Line: Self-reported LE function significantly lower in HIV+ patients with DSP than without DSP.

Quality of Life and Self-Reported Lower Extremity Function in Adults with HIV-related Distal Sensory Polyneuropathy

Bottom Line: Physical Summary Score component of quality of life (MOS-HIV) significantly lower in HIV+ participants with DSP than those without.

Quality of Life and Self-Reported Lower Extremity Function in Adults with HIV-related Distal Sensory Polyneuropathy

• Relationship between QOL, potential confounders, and LE function
  • Regression models of the effects of LEFS and LLFI predicting physical and mental quality of life were statistically adjusted by including potential confounders (employment status, disability benefit status, presence of foot DSP, age, and PT treatment); this resulted in parameter estimates of the relationships of LEFS and LLFI and the quality of life variables after controlling for the effects of the covariates.
  • BOTTOM LINE: Lower limb function scores were highly predictive of both physical and mental QOL after controlling for confounders.
    • The models predicted between 68% and 75% of the variance in physical quality of life and approximately 31% of the variance in mental quality of life. Physical quality of life: R²=0.675 for LEFS and R²=0.749 for LEFS (p<0.001 for all models)
    • Of potential confounders entered into the models, only employment status was associated with physical summary score aspect of QOL (after controlling for LLFI and LEFS scores).
Quality of Life and Self-Reported Lower Extremity Function in Adults with HIV-related Distal Sensory Polyneuropathy (Galantino, Kietrys, et al., submitted)

Bland-Altman analysis to assess agreement between LEFS and LLFI: (+) score indicates LEFS overestimates LLFI (i.e., LLFI indicates that the patient has a lower level of functioning than LEFS), and (-) score indicates that LEFS underestimates (i.e., patient has lower function) than LLFI.

Band of clinically relevant agreement: 11.25 points (MCID of the LEFS)

Mean difference in LEFS and LLFI was 6.2 (significantly different than zero) indicating that, on average, LEFS overestimates LLFI by about 6 points.

LEFS approximates LLFI within the band of clinical agreement in 56.3% (n=132) of the subjects, underestimates LLFI in 15.8% (n=39) of the cases (98.3% confidence interval), and only 11% of the cases (n=26) estimates LLFI in 21.3% (95% CI) of the subjects.

LEFS overestimates LLFI within the band of clinical agreement in only 11% of the cases (n=26), while overestimating LLFI in 21.3% (95% CI) of the subjects.

LLFI is likely to classify patients as having a level of physical functioning equal to or lower than the LEFS in 90% of cases (n=132), while LEFS is more likely to identify patients as having lower self-reported function than the LEFS.

A similar pattern was found when LEFS and LLFI were further analyzed subgrouping for patients with and without DSP. The LLFI was even more likely to indicate impairments in lower extremity function in HIV patients with DSP than the LEFS.

Quality of Life and Self-Reported Lower Extremity Function in Adults with HIV-related Distal Sensory Polyneuropathy (Galantino, Kietrys, et al., submitted)

Analysis of the magnitude of disagreement between LEFS and LLFI revealed a wider degree of disagreement among patients with DSP than in patients without DSP with an interquartile range (IQR) among patients with DSP (IQR=19.3) approximately 3.7 times greater than the IQR for patients without DSP (IQR=5.3).

This indicates that not only can the clinician expect LEFS to overestimate LLFI, but the degree of overestimate is likely to be even less predictable in patients with DSP than in patients without DSP.

Bottom Line: Our findings suggest that the LLFI may be preferable to the LEFS to identify activity limitations (functional impairments) in patients with HIV-related DSP.

Bottom Line: Significant higher rates of utilization of pain management (medical or PT or CAM) in HIV+ participants with DSP.

• Limitations
  • Sample of convenience may explain our observed DSP prevalence rate (67%)
  • Dx of DSP based on self-report (with confirmation from medical chart when possible)
  • Due to our small size, post hoc analysis revealed we were underpowered to detect a difference in Mental Health Summary Scores.
  • Reliance on self-report of function / activity limitation
  • We did not determine prevalence of diabetes or diabetes-related DSP in our sample

Our next study (spring/summer 2014) . . .

The Effects of Yoga on Persons with HIV-related Distal Sensory Polyneuropathy
Kietrys, Galantino et al, funded by Oncology Section of APTA

Repeated measures single group pilot study to determine feasibility and effect sizes

Intervention: 4 weeks of twice weekly yoga class and home practice

Proposed Outcomes
  • Quality of Life (MOS-HIV)
  • Pain
  • Self-reported perception of neuropathy symptoms
  • LE Function (LLFI and 5 time sit to stand test)
  • Temporal and Spatial Gait Characteristics (GAITRite data, 6 min walk test)
  • Vibration sense (biothesiometry)

Thank You