



POSTER PRESENTATION

Open Access

# Idiopathic peripheral neuropathy increases fall risk in a population-based cohort study of older adults

Jody L Riskowski<sup>1,2\*</sup>, Lien Quach<sup>1</sup>, Brad Manor<sup>2,3</sup>, Hylton B Menz<sup>1,2,4</sup>, Lewis A Lipsitz<sup>1,2,3</sup>, Marian T Hannan<sup>1,2</sup>

From 3rd Congress of the International Foot and Ankle Biomechanics Community  
Sydney, Australia. 11-13 April 2012

## Background

Peripheral neuropathy (PN) is often associated with specific diseases; however, research suggests that idiopathic PN is prevalent in older adult populations [1]. Foot ulceration is the traditional medical concern with PN, but people with PN may also have disproportionately more falls [2]. Therefore, our objective was to evaluate

associations between PN and prospectively-ascertained falls in older adults from the population-based MOBILIZE Boston Study.

## Materials and methods

Participants included 760 MOBILIZE Boston Study members. PN was assessed using Semmes-Weinstein

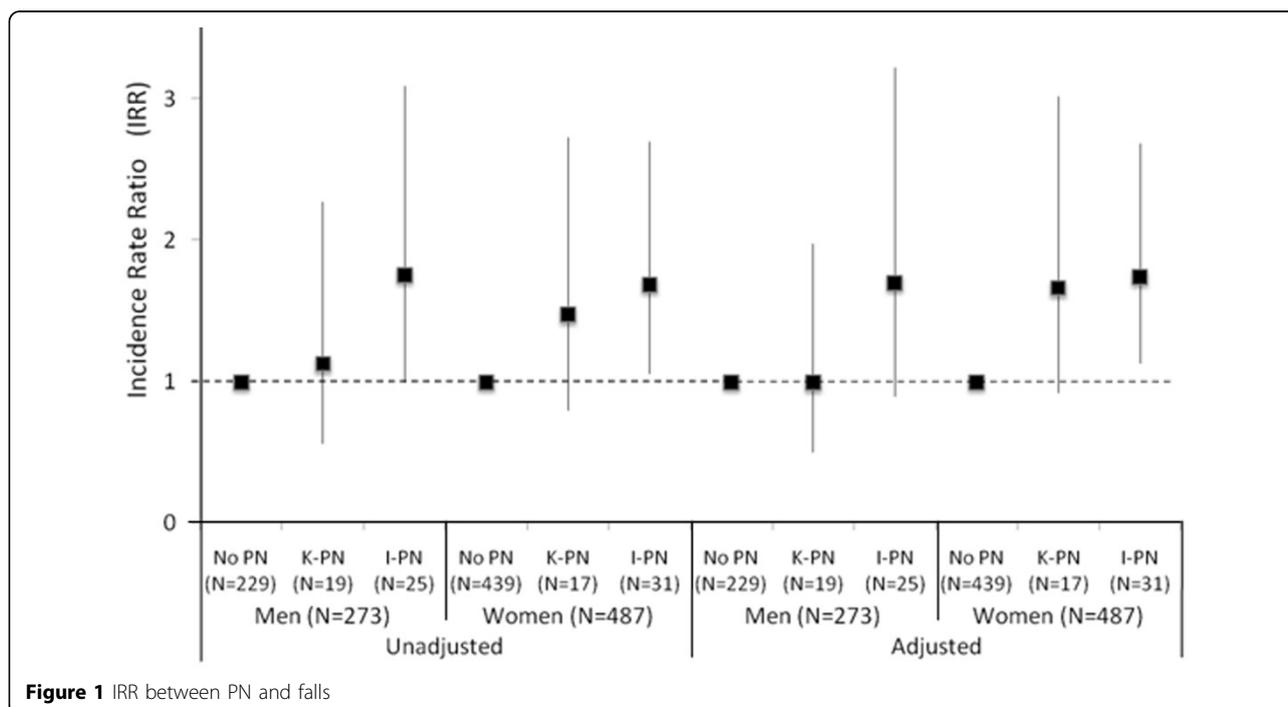


Figure 1 IRR between PN and falls

\* Correspondence: JodyRiskowski@hsl.harvard.edu

<sup>1</sup>Institute for Aging Research, Hebrew SeniorLife, Boston, Massachusetts 02131-1011, USA

Full list of author information is available at the end of the article

monofilament testing [3], applying the modified Health ABC Study method [4,5]. Three PN status groups were defined: (i) no PN (referent), (ii) PN and known disease associated with PN (e.g., diabetes, autoimmune disease) (K-PN), and (iii) idiopathic PN (I-PN). Falls were tracked through monthly fall calendars over a mean 2.8 (range 1.4-4.3) year follow-up period. Unadjusted and adjusted (age, body mass index, physical activity, prior year fall, visual acuity, depression and number of medications) gender-specific negative binomial regression models determined associations between PN and falls.

## Results

I-PN was associated with a higher fall incidence in men (incidence rate ratio [IRR] 1.76 [95% confidence interval 1.00–3.09]; Figure 1) and women (1.69 [1.06–2.70]). These higher IRRs with I-PN persisted even after covariate adjustment in women (1.68 [1.09–2.60]) and men (1.70 [0.90–3.22]), with men's confidence interval widening. K-PN was not associated with an increased incidence of falling in men and had weak, non-significant effect in women.

## Conclusions

Idiopathic PN is an independent fall risk factor for women and men, suggesting that PN assessments should be included in fall risk evaluations. Future work to investigate mechanisms through which PN increases fall risk and to evaluate interventions that target fall risk in individuals with PN, such as insoles with low-grade vibrations [6], is needed.

### Author details

<sup>1</sup>Institute for Aging Research, Hebrew SeniorLife, Boston, Massachusetts 02131-1011, USA. <sup>2</sup>Harvard Medical School, Boston, Massachusetts 02115-6092, USA. <sup>3</sup>Gerontology and Interdisciplinary Medicine and Biotechnology, Beth Israel Deaconess Medical Center, Boston, Massachusetts 02115-6092, USA. <sup>4</sup>Musculoskeletal Research Centre, La Trobe University, Bundoora, Victoria 3086, Australia.

Published: 10 April 2012

### References

1. Mold JW, Vesely SK, Keyl BA, Schenk JB, Roberts M: **The prevalence, predictors, and consequences of peripheral sensory neuropathy in older patients.** *J Am Board Fam Pract* 2004, **17**:309-318.
2. Richardson JK, Hurvitz EA: **Peripheral neuropathy: a true risk factor for falls.** *J Gerontol A Biol Sci Med Sci* 1995, **50**:M211-215.
3. Perkins BA, Olaleye D, Zinman B, Bril V: **Simple screening tests for peripheral neuropathy in the diabetes clinic.** *Diabetes Care* 2001, **24**:250-256.
4. Strotmeyer ES, Cauley JA, Schwartz AV, de Rekeneire N, Resnick HE, Zmuda JM, Shorr RI, Tylavsky FA, Vinik AI, Harris TB, et al: **Reduced peripheral nerve function is related to lower hip BMD and calcaneal QUS in older white and black adults: the Health, Aging, and Body Composition Study.** *J Bone Miner Res* 2006, **21**:1803-1810.
5. Leveille SG, Jones RN, Kiely DK, Hausdorff JM, Shmerling RH, Guralnik JM, Kiel DP, Lipsitz LA, Bean JF: **Chronic musculoskeletal pain and the occurrence of falls in an older population.** *JAMA* 2009, **302**:2214-2221.

6. Liu W, Lipsitz LA, Montero-Odasso M, Bean J, Kerrigan DC, Collins JJ: **Noise-enhanced vibrotactile sensitivity in older adults, patients with stroke, and patients with diabetic neuropathy.** *Arch Phys Med Rehabil* 2002, **83**:171-176.

doi:10.1186/1757-1146-5-S1-P19

**Cite this article as:** Riskowski et al.: Idiopathic peripheral neuropathy increases fall risk in a population-based cohort study of older adults. *Journal of Foot and Ankle Research* 2012 **5**(Suppl 1):P19.

**Submit your next manuscript to BioMed Central  
and take full advantage of:**

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at  
www.biomedcentral.com/submit

