BURDEN OF ILLNESS

Overview

Patient-Reported Burden of Neuropathic Pain Is Significant

| | Activities of daily living | Reduced quality of life Sleep disturbances Drowsiness when awake | | | |
|--|----------------------------|--|--|--|--|
| | Psychological burden | Depression Psychological distress Difficulty in concentration | | | |
| | Physical burden | • Physical disability | | | |
| | Neuropathic pain | | | | |
| Both the intensity of the pain and the duration of the condition exacerbate the patient's burden | | | | | |
| | | | | | |

Cruz-Almeida Y et al. J Rehab Res Dev 2005; 42(5):585-94; Gilron I et al. CMAJ 2006; 175(3):265-75; Jensen MP et al. Neurology 2007; 68(15):1178-82; Khenioui H et al. Ann Readapt Med Phys 2006; 49(3):125-37; Meyer-Rosberg K et al. Eur J Pain 2001; 5(4):379-89.

Physical Burden

Chronic Neuropathic Pain Has a Significant Impact on Daily Functioning



BPI = Brief Pain Inventory, which scores extent pain interferes with activities in last 24 hours from 0 (does not interfere) to 10 (completely interferes) Adapted from: Smith BH *et al. Clin J Pain* 2007; 23(2):143-9.

Chronic Neuropathic Pain Significantly Impairs Quality of Life



Patients with Peripheral Neuropathic Pain Experience Significant Comorbid Symptoms



% patients with moderate to very severe discomfort

Meyer-Rosberg K et al. Eur J Pain 2001; 5(4):379-89; Vinik Al et al. Diabetes Care 2003; 26(5):1553-79.

Workers with Painful Diabetic Peripheral Neuropathy Have Lower Quality of Life Scores

| Quality of life scores from SF-12v2 | Workers with painful diabetic peripheral neuropathy | Workers without painful diabetic peripheral neuropathy |
|--|---|--|
| Physical component summary | 39.0 | 50.5 |
| Mental component summary | 43.7 | 47.3 |

SF-12v2 = Short-Form 12 version 2 National Health and Wellness Survey (NHWS) 2008.

Postherpetic Neuralgia Affects Multiple Quality of Life Domains

Percentages of Participants with Postherpetic Neuralgia (n = 63) Who Reported Problems in the EuroQol EQ-5D



Economic Burden

The Economic Burden of Neuropathic Pain Is due to Reduced Productivity and Increased Health Care Costs



Berger A et al. J Pain 2004; 5(3):143-9; Lachaine J et al. Pain Res Manage 2007; 12(1):31-7; Meyer-Rosberg K et al. Eur J Pain 2001; 5(4):379-89.

Neuropathic Pain Reduces Employment



n = 126

Patients with Neuropathic Pain Experience Reduced Productivity at Work



Pfizer Inc. Data on file, European Survey in Painful Neuropathic Disorders.

Workers with Painful Diabetic Peripheral Neuropathy Have Reduced Productivity



Workers

With painful diabetic peripheral neuropathy

Without painful diabetic peripheral neuropathy

Source: National Health and Wellness Survey (NHWS) 2008.

Patients with Neuropathic Pain Have Higher Healthcare Utilization than Those without Neuropathic Pain

| | Patients with painful neuropathic disorder (mean ± SD) | Patients without painful neuropathic disorder (mean ± SD) | ANOVA |
|----------------------------|--|--|-----------------|
| Visits to GPs | 6.7 ± 13.5 | 3.4 ± 8.1 | <i>p</i> <0.001 |
| Visits to specialists | 8.0 ± 14.0 | 3.0 ± 7.7 | <i>p</i> <0.001 |
| GP procedures | 5.4 ± 8.0 | 2.2 ± 3.8 | <i>p</i> <0.001 |
| Specialist procedures | 10.3 ± 14.8 | 3.6 ± 7.6 | <i>p</i> <0.001 |
| Days of hospitalization | 2.9 ± 9.4 | 1.1 ± 5.1 | p <0.001 |

Workers with Painful Diabetic Peripheral Neuropathy Have Higher Healthcare Utilization

| Resource use in the past 6 months | Workers with painful diabetic peripheral neuropathy (%) | Workers without painful diabetic peripheral neuropathy (%) |
|-------------------------------------|---|--|
| ≥1 doctor visit | 94.6 | 72.5 |
| >1 non-traditional healthcare visit | 35.3 | 21.9 |
| <u>≥</u> 1 ER visit | 24.6 | 11.7 |
| >1 hospitalization | 18.6 | 6.0 |
| Number of prescription medicines | 11.0 | 1.9 |

ER = emergency room Source: National Health and Wellness Survey (NHWS) 2008.

Increasing Pain Severity Leads to Increasing Health Care Utilization in Patients with Diabetic Peripheral Neuropathy



Pain severity (m-BPI-DPN)

n = 255

m-BPI-DPN = modified Brief Pain Inventory for DPN Zelman D *et al. Pain* 2005 115(1-2):29-36.

Adults Aged ≥20 Years with a Diagnosis of Shingles Have More Medical Visits



Number of visits (K)

Source: 2002–2006: National Ambulatory Medical Care Survey (NAMCS),

National Hospital Ambulatory Medical Care Survey (NHAMCS) and National Hospital Discharge Survey (NHDS) Pfizer Medical Division. *The Burden of Pain Among Adults in the United States*. Pfizer Inc.; New York, NY: 2008.

Comorbidities

Comorbid Chronic Medical Conditions* Among Patients with Painful Neuropathic Disorders



*Based on health care claims

CHD = coronary heart disease; CHF = congestive heart failure; COPD = chronic obstructive pulmonary disease Berger *et al. J Pain* 2004; 5(3):143-9.

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Neuropathic Pain Is Associated with Sleep Disturbance, Anxiety and Depression



Nicholson B, Verma S. Pain Med 2004; 5(Suppl 1):S9-27.

Many Patients with Diabetic Neuropathy Have Sleep and Mental Health Comorbidities



Many Patients with Postherpetic Neuralgia Have Sleep and Mental Health Comorbidities



MDD = major depressive disorder Davis JA *et al. J Pain Res* 2011; 4:331-45.

Patients with Postherpetic Neuralgia Have Significant Pain-Related Sleep, Mood and Activity Impairment

Magnitude of Impairment on Modified Brief Pain Inventory (n = 385)



Moderate: 4–6; Severe: 7–10 Oster G *et al. J Pain* 2005; 6(6):356-63.

Patients with Chronic Neuropathic Pain Have More Anxiety and Depression than Those with Chronic Pain without Neuropathic Pain



were correlated with the DN4 score

DN4 = Douleur neuropathique en 4 questions Attal N *et al. Pain* 2011; 152(12):2836-43.

Patients with Chronic Neuropathic Pain Have More Sleep Disturbances than Those with Chronic Pain without Neuropathic Pain



Summary

Burden of Illness: Summary

- Neuropathic pain is associated with:
 - Substantial functional impairment across multiple domains
 - Reduced quality of life
 - Decreased productivity
 - Increased healthcare utilization
 - Sleep and mental health comorbidities