

A Cross-Sectional Study of Factors That Influence The Prescribing of Recommended Medications in People with Neuropathic Pain

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Introduction

- Neuropathic pain (NP) is debilitating and difficult to manage.
- Only 45% of NP patients in the UK receiving a medication rate their treatment as satisfactory.
- Recommended first line medications for NP include gabapentinoids, tricyclic anti-depressants and serotonin-norepinephrine reuptake inhibitors.
- **However, recent studies suggest that only ~40% of patients receive a recommended first line medication.**
- The extent to which guidelines are being followed and who are most likely to receive a recommended anti-NP medication have not been fully explored.

Aims

- To determine the prevalence of being prescribed a recommended medication for NP.
- To identify the patient factors that are associated with being prescribed a recommended medication for NP (compared to being prescribed another medication recommended for non-NP).

Methods

Design

- Cross-sectional study of participants of Generation Scotland who completed a questionnaire on NP as part of DOLORisk Dundee (n=7,240).
- Participants with chronic NP and electronically linked to community prescribing data (May 2016 to September 2017) included (n=859).

Neuropathic Pain Definition

- Responding “yes” to either:
 - a. “Are you currently troubled by pain or discomfort, either all the time or on and off?”
 - b. “Are you currently taking medication specifically to treat pain or discomfort?”
- Pain duration ≥ 3 months
- DN4 score ≥ 3

Outcome

- Derived from NeuPSIG, National Institute for Health and Care Excellence (NICE) and Scottish Intercollegiate Guidelines Network (SIGN) guidelines.
 - ≥1 prescription for a recommended medication for NP (Rx_{NP}):
 - Gabapentin, pregabalin, carbamazepine, amitriptyline, imipramine, nortriptyline, clomipramine, desipramine, duloxetine, venlafaxine, strong opioids (including tramadol), lidocaine and capsaicin patches, ketamine and botulinum toxin A.
 - ≥1 prescription for a medication recommended for non-NP (Rx_{Non-NP}), but no Rx_{NP} prescription:
 - Weak opioids, non-steroidal anti-inflammatory drugs, rubefacients, antimigraine, paracetamol, nefopam, selective serotonin reuptake inhibitors and combinations (e.g. co-codamol).

Predictors

Table 1 – Candidate predictors

Group	Characteristics
Demographics	Age, sex, deprivation, ethnicity
Lifestyle	Smoking status, alcohol consumption
Clinical	Body mass index
Psychological	Depression, anxiety, sleep disturbance, childhood trauma, personality
Pain-related	Duration, location, severity, worrying

Statistical Analysis

- Baseline characteristics described using percentages or median and interquartile range.
- Chi-square or Mann-Whitney test used to determine significant differences between Rx_{NP} and Rx_{Non-NP}.
- Multiple imputation used to replace missing data (variables missing < 30%).
 - Number of datasets equal to percentage of missing data.
 - Predictive mean matching.
- Significant factors from univariate analysis (P<0.05), entered into pooled multiple logistic regression analysis.

Results

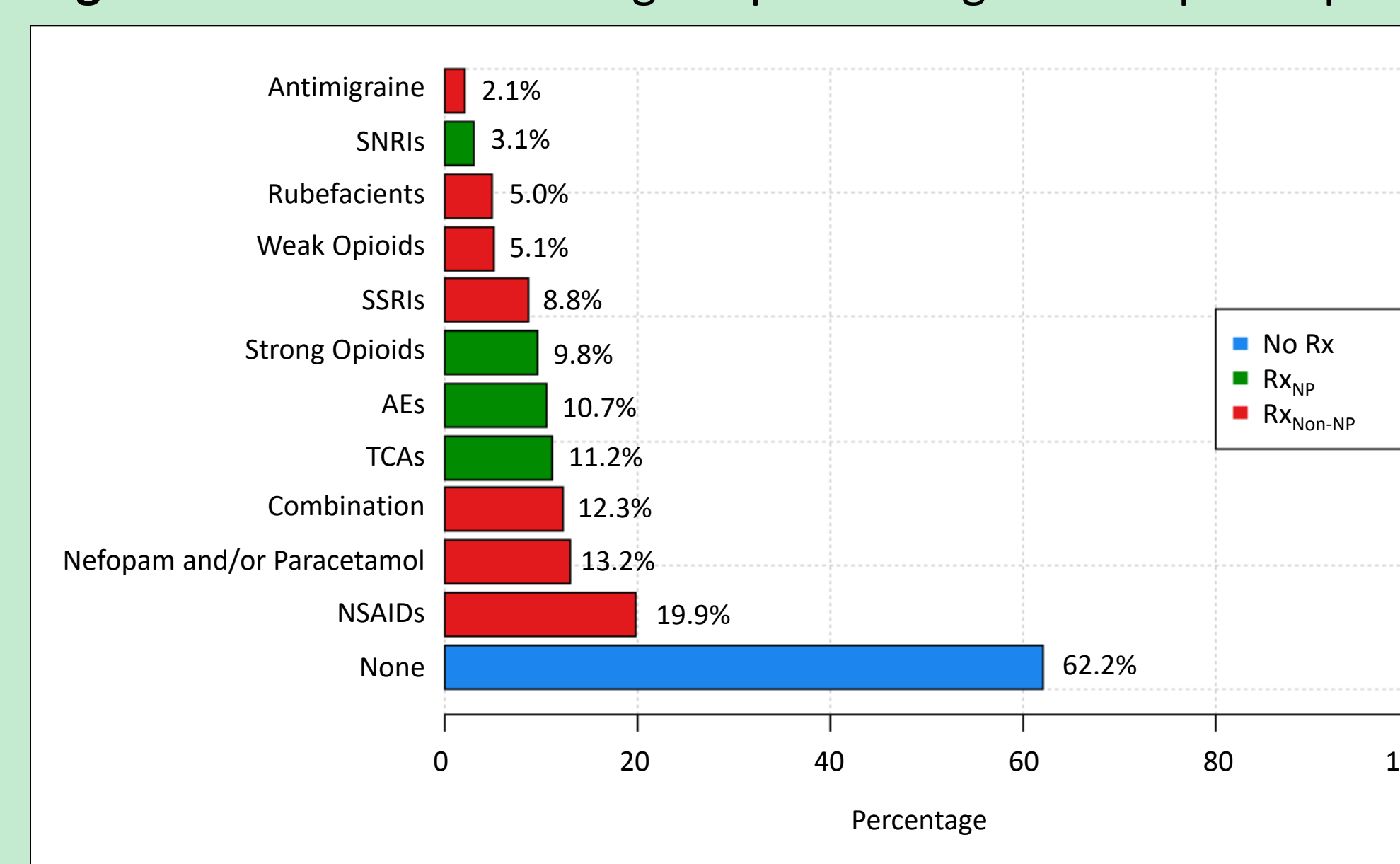
Table 2 – Baseline demographics of study participants

Characteristic	n=859
Age, years	
Median (interquartile range)	59 (14)
Range	24-94
Sex, n (%)	
Male	278 (32.4)
Female	581 (67.6)
Scottish Index of Multiple Deprivation, n (%)	
1 (most deprived)	131 (16.1)
2	134 (16.4)
3	124 (15.2)
4	212 (26.0)
5 (least deprived)	214 (26.3)
Ethnicity, n (%)	
Caucasian	829 (96.5)
Non-Caucasian	30 (3.5)

Table 3 – Prevalence of study outcomes

Analgesic Outcome	N, (%)
Rx _{NP}	187 (21.8)
Rx _{Non-NP}	138 (16.1)
No recommended analgesic	534 (62.2)

Figure 1. Prevalence of analgesic prescribing in neuropathic pain



AEs, Antiepileptics; NSAIDs, Non-steroidal anti-inflammatory drugs; SNRI, Serotonin-norepinephrine reuptake inhibitors; SSRI, Selective serotonin reuptake inhibitors; TCAs, tricyclic antidepressants.

Table 4 – Factors associated with being prescribed a medication recommended for neuropathic pain (multivariate analysis)

Variable	Adjusted OR (95% CI)	P-value
Pain Duration		
3-12 months	-	-
1-5 years	0.60 (0.28-1.29)	0.19
>5 years	1.17 (0.56-2.42)	0.68
Pain Severity (Chronic Pain Grade)		
1 (low disability, low intensity)	-	-
2 (low disability, high intensity)	1.03 (0.52-2.02)	0.94
3 (high disability, moderate intensity)	1.42 (0.59-3.44)	0.43
4 (high disability severely limiting)	1.86 (0.72-4.82)	0.20
Any Hip Pain	<u>1.83 (1.05-3.19)</u>	<u>0.03</u>
Any Leg or Knee Pain	0.99 (0.56-1.75)	0.97
Any Widespread Pain	0.93 (0.48-1.81)	0.83
Health-Related Quality of Life (EQ5D)	<u>0.06 (0.01-0.35)</u>	<u><0.01</u>
Currently drink alcohol	0.59 (0.31-1.13)	0.11
Depression (PROMIS T-score)	1.00 (0.97-1.04)	0.97
Sleep Disturbance (PROMIS T-score)	1.00 (0.97-1.03)	0.92
Pain-Related Worrying (PCS)	1.00 (0.97-1.03)	0.85

CI, Confidence interval; OR, Odds ratio;

Discussion

Conclusions

- **The majority of people with chronic NP were not prescribed any recommended analgesic.**
- These people may have received another treatment or been prescribed an analgesic prior to the study period.
- Those most likely to receive a recommended NP medication were those with the poorest health-related quality of life.

Relevance for Patient Care

- Further work is needed to understand the reasons for the disparity between clinical guidelines and prescribing behaviour. These are likely to involve clinician factors as well as patient factors.