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Back Complaints in Older Adults: Prevalence of Neuropathic Pain and Its Characteristics

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Abstract

Objective. Neuropathic symptoms are reported in 16–55.6% of patients with back pain. Studies were performed in various populations; however, none focused on older adults. The aim of the study was to assess prevalence of neuropathic pain in older adults with back pain.

Methods. Prevalence of neuropathic pain, measured with the Dolour Neuropathique en 4 questions (DN4), was assessed in the Back Complaints in the Elders study (Netherlands). Patients (>55 years) consulting their general practitioner with a new episode of back complaints were included. Two DN4-versions were used: one based on interview plus physical examination, the other based on interview alone. In the interview plus physical examination version, patients' and complaint characteristics were compared between groups with different scores (0, 1, 2, 3, and ≥4). The DN4 interview-version compared patients with negative and positive scores.

Results. Of the 261 included patients available for analysis were 250 patients (95.8%) with the DN4 interview plus physical examination, and 259 patients (99.2%) with the DN4 interview. In DN4 interview plus physical examination (N = 250), five patients (2%) scored positive (score ≥4). Higher score was associated with pain radiating below the knee ($P < 0.001$) and use of paracetamol ($P = 0.02$). In DN4 interview (N = 259), 29 (11.2%) patients scored positive (score ≥3). Positive score was associated with higher body mass index ($P = 0.01$), pain radiating below the knee ($P = 0.001$), and use of paracetamol ($P = 0.002$).

Conclusions. In older adults with back pain presenting with a new episode in primary care, prevalence of neuropathic pain is low and seems to be associated with pain radiating below the knee, use of paracetamol, and higher body mass index.

Key Words. Back Pain; Neuropathic Pain; Older Adults

Introduction

Back pain is an important health problem in the community [1–3], with the low back being the most affected area [4]. A recent systematic review estimated the point prevalence of low back pain in the open population to be 11.9% [3]. In older adults, benign or mild back pain seems to be less frequent compared with other age groups, but they experience more episodes with severe or disabling back

pain [5]. Pain in older adults is reported to last longer compared with younger patients with back pain [4]. With the aging population, it is likely that a greater number of people will suffer from severe back pain in the future. Costs related to back pain are a substantial burden on society [2,6]. As the prevalence of seeking health care for back pain increases with age [2], costs will probably also increase in the coming decades. It is noteworthy that patients with neuropathic pain use more health care compared with patients with nociceptive pain [7].

Neuropathic pain is defined as pain arising as a direct consequence of a lesion or disease affecting the somatosensory system either at peripheral or central level [8]. In back pain, although the mechanism of neuropathic pain is not fully understood, most likely different mechanisms play a role in the development of neuropathic pain. It is thought that back pain can be a "mixed" pain consisting of nociceptive and neuropathic components. Neuropathic pain may be caused by lesions of nociceptive sprouts in the degenerated intervertebral discs, by mechanical compression of the nerve root or by action of inflammatory mediators from degenerated intervertebral discs [9]. It is important to identify patients with neuropathic pain and neuropathic components because conventional analgesic treatment may be less effective in this population [10–12]. Thus, identification of patients with neuropathic pain may guide the choice of further investigation and/or therapy. Various screening instruments are available to identify neuropathic pain, such as Dolour Neuropathique en 4 questions (DN4) [13], Leeds Assessment of Neuropathic Symptoms and Signs (LANSS) [14] and painDETECT [15]. These screening instruments have a sensitivity ranging from 66–85% and specificity from 74–90% [13–18]. The DN4 has shown good face validity and interrater reliability in the general population, tested in persons with a mean age of 56 years (standard deviation [SD] 17) [13], the validity remained the same whether the patients had neuropathic pain or mixed pain syndromes. The DN4 is also validated in back pain patients aged 22–85 years of age.

Neuropathic symptoms are reported in 16–55.6% of patients with low back pain, with and without radiating leg pain [13,19–24]. The range is broad because studies were performed in various populations. However, none of the studies focused on older adults. In this cross-sectional survey, we assessed the prevalence of neuropathic pain using the DN4 in older adults who consulted their general practitioner (GP) with a new episode of back complaints. Furthermore, we compared two different DN4 versions and evaluated whether differences exist in patients' and back complaint characteristics such as duration of back pain and back pain severity between the groups with and without neuropathic pain.

Methods

The present study included a subpopulation from the Back Complaints in the Elders (BACE) study in the Netherlands [25]. Patient inclusion in this Dutch BACE study (N = 675) took place from March 2009 until September 2011. In BACE, patients aged >55 years were included when they consult a GP with a new episode of back complaints. Back complaints were defined as pain in at least a part or the whole region from the top of the shoulder blades to the first sacral vertebra. If a patient had not visited the GP with the same back complaints in the preceding 6 months, it was considered a new episode. Thus, the sample also included patients with longer durations of back pain who had not visited their GP in the preceding 6 months for evaluation of this condition. Patients were excluded if they were unable to fill out the questionnaires due to cognitive impairment (e.g., dementia or stroke) or were not able to read and write in Dutch. Patients who were unable to undergo physical examination (e.g., wheelchair-bound patients) were also excluded. For more details, see the design article of the BACE study [25]. The subpopulation used in the present study consisted of patients included from January 2011 onwards. From this moment on, neuropathic pain was measured in the participating patients during baseline measurement.

The Medical Ethics Committee of Erasmus Medical Center in Rotterdam approved the study protocol.

Measurements

At the entry of this study, a baseline questionnaire was completed by the patients and physical examination of the back took place. The questionnaire included sociodemographic characteristics, patients self-reported comorbidity, use of medication, and duration and localization of pain. Severity of pain was measured on an 11-point numerical rating scale (NRS) [26] with 0 as "no pain" and 10 representing "worst pain ever." Disability was measured with the Roland Morris Disability Questionnaire (RDQ) [27]. The RDQ scores range from 0 (no disability) to 24 (severe disability). Quality of life was measured with the Short-Form 36 (SF-36), Dutch version [28]. The SF-36 measures eight dimensions: physical function, role-physical function, bodily pain, general health, vitality, social function, role-emotional function, and mental health. These eight dimensions can be recoded into two summary scores: a physical component summary score and a mental component summary score. Each dimension and summary score is scored from 1 to 100, with a higher score representing better health [29,30]. Summary scores were calculated with adapted Z-values, in view of the higher mean age of our study population [28]. Depression was measured with the Center for Epidemiologic Studies Depression Scale (range 0–60). Patients with a higher score are more prone to depression [31]. Pain catastrophizing was measured with the pain catastrophizing scale (range 0–52), with a higher score representing a higher risk for catastrophizing [32]. Back beliefs were investigated with the back beliefs questionnaire [33]. Lifestyle factors included smoking and drinking alcohol. Drinking alcohol was measured with the Audit-C [34,35]. Women were defined as possible hazardous drinkers if they scored ≥3 on the scale, and men if they scored ≥4. During physical examination, body weight and height were measured and converted to body mass index (BMI).

For this substudy, we included those patients who completed both the DN4 interview plus physical examination. The DN4 consists of a seven-item interview and a three-item physical examination, with a score range of 0–10. The interview consisted of questions about the pain characteristics (burning, painful cold, electric shocks, tingling, pins and needles sensation, numbness, and itchiness), the physical examinations tested sensitivity to touch, pinprick, and brush. For a more detailed description of the DN4, see Appendix A. In a general population, a score of ≥4 indicates neuropathic pain with a sensitivity of 83% and a specificity of 90% [13]. The DN4 is validated in patients with chronic low back pain in the age of 22–85 years [36] and linguistically validated in Dutch [37]. The interview (hereafter called the "DN4 interview") can also be used without the physical examination. In the DN4 interview, the maximum score is 7 and a score of ≥3 indicates neuropathic pain (sensitivity 82% and specificity 86%) [38].

Statistical Analysis

Descriptive statistics were used to present patient characteristics in frequencies for all variables with categorical data and to calculate mean and SD for continuous variables.

The DN4 interview plus physical examination, and the DN4 interview alone, were analyzed separately. For the DN4 interview plus physical examination, patients' and complaint characteristics were compared between all groups with different scores (0, 1, 2, 3, and ≥4) with the one-way analysis of variance for variables with numerical data. Patients with a score of 4 and 5 were analyzed together because of the small number of patients with these scores. There were no patients with a score of 6 or more. Groups were tested for equal variances using Levene's test, and a Kruskal–Wallis test was used if assumptions for normality were not satisfied. Categorical variables were analyzed with the chi-square test linear by linear in which all groups with different scores were compared. In the DN4 interview analysis, patients' and complaint characteristics were compared between patients with a negative and a positive DN4 score using an independent sample *t*-test. Levene's test was used to test equal variances; if assumptions for normality were not satisfied, a Mann–Whitney *U* test was performed. Variables with categorical data were analyzed using the chi-square test. If >20% of the cells contained an expected count of <5, the tables were reduced. If the 2 × 2 table still had an expected count <5, Fisher's exact test was performed. Reported *P* values were from two-sided tests, and a $P < 0.05$ was defined as statistically significant. All analyses were performed using SPSS software (version 17.0 for Windows, Chicago, IL, USA).

Results

The present study included 261 (38.7%) of the 675 patients from the Dutch BACE study. All patients answered the DN4 questions, but two patients did not answer all the questions in the interview. Nine patients did not have a complete DN4 physical examination. Therefore, 250 patients (95.8%) were available for the DN4 interview plus physical examination analysis, and 259 patients (99.2%) were available for analysis of the DN4 interview.

Patients

Table 1 shows the baseline characteristics of the 261 included patients.

The mean age of the 261 patients was 66.4 ± 7.6 (range 56–87) years. Mean BMI was 27.7 ± 4.7. Of these patients, 103 (39.5%) were male, 16.5% (43 patients) smoke, and 122 patients (46.7%) were at risk for hazardous drinking. Chronic back pain (pain lasting more than 3 months) was present in 62 patients (23.8%), and 81 patients (31.0%) had pain radiating below the knee. Mean baseline pain severity measured with the NRS was 5.0 ± 2.7. Of all patients, 184 (70.5%) used pain medication. The most frequently used were paracetamol and nonsteroidal anti-inflammatory drugs. Mean time between consulting a GP and DN4 measurement was 29.0 ± 12.8 days.

DN4 Interview Plus Physical Examination

Table 2 shows a comparison of patients' and complaint characteristics between the different scores of the 250 patients in the DN4 interview plus physical examination analysis.

Only five patients (2%) scored positive on the DN4 interview plus physical examination (four patients scored 4; one patient scored 5). There was significantly more pain radiation in patients with a higher DN4 score. Patients with a higher DN4 score also used significantly more paracetamol. SF-36 physical summary score tended to be lower in patients with a higher DN4 score, but the difference was not significant.

DN4 Interview

Table 3 presents data on the comparison between patients with positive and negative scores on the DN4 interview.

In the DN4 interview, 111 patients (42.9%) scored 0 points, 85 patients (32.8%) scored 1 point, and 34 patients (13.1%) scored 2 points. A total of 25 patients (9.7%) scored 3 points, three patients (1.2%) scored 4 points, and one patient (0.4%) scored 5 points. No patients scored higher than 5 (total score range 0–7). Of the 259 patients, 29 (11.2%) had a positive score (≥3 points) on the DN4 interview, which indicated neuropathic pain. Patients having neuropathic pain had a significantly higher BMI compared with patients who did not have neuropathic pain. Patients with neuropathic pain more often had pain radiating below the knee and use paracetamol more frequently. Baseline back pain severity

Table 1 Baseline patient characteristics of the study population

	All Patients (N = 261)
Age in years	66.4 ± 7.6
Male, N (%)	103 (39.5)
BMI	27.7 ± 4.7
Low education level, N (%)	106 (40.6)
Smoking, N (%)	43 (16.5)
Hazardous drinking*, N (%)	122 (46.7)
Severity of back pain†	5.0 ± 2.7
Disability‡	9.8 ± 5.7
Duration of back pain > 3 months, N (%)	62 (23.8)
Time in days between consultation with general practitioner and the DN4	29.0 ± 12.8
Pain radiates to below the knee, N (%)	81 (31.0)
Pain location only lumbar, N (%)	188 (72.0)
Use of pain medication for back pain, N (%):	184 (70.5)
Paracetamol, N (%)	100 (38.3)
NSAID, N (%)	97 (37.2)
Opioid, N (%)	22 (8.4)
Benzodiazepine, N (%)	16 (6.1)
Antidepressant or antiepileptic, N (%)	2 (0.8)
Diabetes, N (%)	41 (15.7)
Quality of life physical summary scale§	43.7 ± 9.0
Quality of life mental summary scale§	49.4 ± 10.2
Depressive symptomatology¶	9.9 ± 7.8
Pain catastrophizing**	14.0 ± 11.0
Attitude and beliefs about back pain††	26.4 ± 7.0

All results are presented as mean ± SD unless stated otherwise.
* Hazardous drinking is measured with Audit-C: range 0–12; ≥3 in woman and ≥4 in men are risk of hazardous drinking.
† Measured with numerical rating scale; range 0–10; 0 is no pain, 10 is the worst pain imaginable.
‡ Measured with the Roland Morris disability questionnaire range 0–24; 0 is no disability.
§ Measured with Short-Form 36, range 0–100; higher score is higher quality of life.
¶ Measured with CES-D, range 0–60; higher score indicates more prone to depression.
** Measured with pain catastrophizing scale, range 0–52; higher score is more risk for catastrophizing.
†† Measured with back beliefs questionnaire, range 9–49; higher score is more positive thoughts of recovery.
BMI = body mass index; CES-D = Center for Epidemiologic Studies Depression Scale; DN4 = Dolour Neuropathique en 4 questions; NSAID = nonsteroidal anti-inflammatory drug; SD = standard deviation.

(NRS pain scale) was higher in neuropathic pain patients, but the difference was not significant.

Discussion

Prevalence

In older adults with back pain, the prevalence of neuropathic pain was 2% using the DN4 interview plus physical examination and was 11.2% using the DN4 interview alone. This is considerably lower than the 16–55.6% reported by others [13,19–24]. There are various possible reasons for this difference. First, most studies were performed in specialist centers (mostly in secondary/tertiary care) [13,19–22,24], whereas the present study was performed in a primary care setting. Beith et al. analyzed primary care patients with back pain who were referred for physiotherapy, 95% of whom were referred by a GP [23]; they reported a neuropathic pain prevalence of 16% that is more in line with our findings.

The screening tools used to measure neuropathic pain may also explain the different prevalences. Different tools including the DN4, LANSS [14], Self-Report LANSS (S-LANSS) [18], and PainDETECT [15] were used. One study compared S-LANSS and DN4 and obtained a different prevalence for patients with neuropathic pain using these different screening tools [21]. This difference in prevalence might be due to the absence of physical examination in the S-LANSS, resulting in a lower prevalence (33 vs 42%). We found a higher prevalence in the DN4 interview group. Physical examination in our study was always performed on the spine. Another research group recently suggested that physical examination as a part of DN4 should also be performed on other painful areas such as the leg [36]. This might also explain the lower prevalence of our patients scoring positive on the DN4 interview plus physical examination. On the other hand, the tests performed in physical examination may not be as sensitive in older adults.

A third difference is the duration of back pain. Most earlier studies included patients if they had suffered back pain for at least 3 months (chronic pain) [13,19,20,22,24], whereas we included all patients with back pain irrespective of the duration. In our population, mean duration ± SD of back pain was 8.1 ± 31.9 months (median 1.1 month interquartile range 0.7–3.3 months) (data not shown). In our population, 23.8% of the patients had chronic back complaints. It is possible that the neuropathic component of back pain emerges after a longer period of back pain, which might explain this difference in neuropathic pain prevalence.

Interpretation of Findings

Use of paracetamol was more frequent in patients with a positive neuropathic pain score. Torrance et al. [39] reported that patients with neuropathic pain in primary care took stronger painkillers, although they did not report "over-the-counter" medications these people used. In the present study, almost all patients were treated with conventional analgesics rather than with antineuropathic drugs; this is in line with the results from a Belgian study [40]. Also, a rat study showed that paracetamol has peripheral antiallodynic and antihyperalgesic effects [41], mechanism that might contribute to pain relief in patients with neuropathic pain. It is likely that patients with neuropathic pain experience pain relief after taking paracetamol and therefore continue to use them. On the other hand,

Table 2 Comparison of characteristics between scores of the DN4 interview and physical examination (N = 250)

	0 (N = 102)	1 (N = 82)	2 (N = 37)	3 (N = 24)	>4 (N = 5)	*P* Value
Age in years	67.0 ± 7.2	67.1 ± 8.5	64.7 ± 7.2	64.8 ± 7.0	62.8 ± 4.4	0.31
Male, N (%)	41 (40.2)	32 (39.0)	18 (48.6)	6 (25.0)	3 (60.0)	0.88
BMI*	27.3 ± 4.1	27.4 ± 4.5	28.2 ± 6.0	29.0 ± 4.2	33.2 ± 10.5	0.16
Low education level, N (%)	37 (36.6)	37 (46.3)	15 (40.5)	10 (41.7)	3 (60.0)	0.37
Smoking, N (%)	14 (13.9)	16 (20.0)	7 (18.9)	2 (8.7)	1 (20.0)	0.94
Hazardous drinking, N (%)	54 (54.5)	34 (43.6)	17 (45.9)	11 (47.8)	2 (40.0)	0.30
Severity of back pain	4.5 ± 2.7	5.0 ± 2.7	5.5 ± 2.7	5.9 ± 2.2	5.0 ± 3.1	0.15
Disability	8.9 ± 5.6	9.7 ± 5.9	11.1 ± 5.6	11.9 ± 5.1	10.6 ± 5.3	0.10
Duration of back pain > 3 months, N (%)	29 (30.9)	14 (19.2)	9 (25.7)	7 (33.3)	1 (20.0)	0.73
Time in days between consultation with general practitioner and the DN4	28.4 ± 13.5	28.2 ± 12.0	28.4 ± 10.5	32.1 ± 16.3	28.0 ± 4.7	0.75
Pain radiates below the knee, N (%)	22 (21.8)	24 (30.0)	15 (40.5)	14 (58.3)	3 (60.0)	**<0.001**
Pain location only lumbar	72 (70.6)	62 (75.6)	28 (75.7)	16 (66.7)	3 (60.0)	0.84
Use of paracetamol, N (%)	35 (34.7)	29 (36.3)	14 (37.8)	17 (70.8)	2 (40.0)	**0.02**
Use of NSAID, N (%)	39 (38.6)	28 (35.0)	17 (45.9)	8 (33.3)	1 (20.0)	0.75
Quality of life physical summary scale	45.2 ± 9.1	43.7 ± 8.7	40.8 ± 8.7	40.9 ± 8.3	42.0 ± 7.8	0.06
Quality of life mental summary scale	50.6 ± 9.9	48.8 ± 10.6	47.7 ± 10.6	48.2 ± 10.4	47.8 ± 9.3	0.54
Depressive symptomatology	8.8 ± 7.9	10.5 ± 7.6	12.3 ± 8.9	9.6 ± 6.6	13.8 ± 8.2	0.15
Pain catastrophizing	13.4 ± 10.7	13.8 ± 11.1	15.4 ± 11.3	15.9 ± 11.7	11.4 ± 12.3	0.48
Attitude and beliefs about back pain	26.8 ± 7.0	26.1 ± 6.7	24.9 ± 7.1	27.0 ± 7.3	22.8 ± 6.5	0.77

All results are presented as mean ± SD unless stated otherwise.
* Analyzed with the Kruskal–Wallis test.
BMI = body mass index; DN4 = Dolour Neuropathique en 4 questions; NSAID = nonsteroidal anti-inflammatory drug; SD = standard deviation.

conventional analgesic treatment is also reported to be less effective in neuropathic pain [10–12]. Patients might also use more paracetamol because they did not experience sufficient pain relief.

In the present study, pain radiating below the knee was associated with neuropathic pain, which is in line with other reports [36,38] and with the belief that neuropathic mechanisms play a greater role in leg pain than in nonradiating back pain [15,24,42].

The physical summary score of the SF-36 tended to be lower in patients with a higher score on the DN4, but the difference was not significant. In the community, neuropathic pain is associated with lower scores on all dimensions of the SF-36 [7,43]. These results were also observed in a study investigating primary care patients [23]. Probably, our study was not sufficiently powered to show significant difference between the groups.

Severity of back pain measured with the NRS tended to be higher in patients with a positive DN4 score, but the difference was not significant. Although some studies reported an association between neuropathic pain and pain severity [23,38,43–45], only one of these studies was performed in back pain patients [23]. Another study showed no association between neuropathic pain and back pain severity [20]. It is possible that older adults experience pain differently from younger persons, as demonstrated in back pain [4,5]. Also, our lack of association between pain severity and a positive score on the DN4 might be due to the small number of patients scoring positive on the DN4.

We found no associations between neuropathic pain, and age, gender, and duration of back pain. Recent literature shows conflicting results concerning these characteristics. Some data are in line with ours [20,40], whereas others found associations with higher age [19,22,38,44] and gender [19,22,38,44,45]. However, those studies were performed in a general population or in secondary care, while our study was performed in primary care. The studies that found an association with age included a younger group than ours, and their mean age remained under 55 years; in view of the 10-year difference in mean age, the effect they found may no longer present at older age (55 years and over). Only Bouhassira et al. [38] reported that neuropathic pain increases with age, peaking at 50–64 years in a general population. It is possible that we found no association with age because our patients were over 55 years of age and the age range of our population was too small.

Table 3 Comparison of patients scoring positive or negative on the DN4 interview

Characteristics	Negative DN4 (N = 230, 88.8%)	Positive DN4 (N = 29, 11.2%)	Mean Difference (95% CI)	*P* Value
Age in years	66.7 ± 7.7	64.4 ± 6.6	2.3 (–0.6–5.2)	0.13
Male, N (%)	93 (40.4)	9 (31.0)		0.33
BMI	27.4 ± 4.5	29.7 ± 5.8	–2.4 (–4.2––0.5)	**0.01**
Low education, N (%)	93 (41.0)	13 (44.8)		0.87
Smoking*	40 (17.6)	3 (10.7)		0.44
Hazardous drinking, N (%)	108 (48.4)	13 (46.4)		0.84
Severity of back pain†	4.9 ± 2.7	5.7 ± 2.3	–0.9 (–1.9–0.17)	0.10
Disability	9.5 ± 5.8	11.7 ± 5.0	–2.1 (–4.4–0.1)	0.06
Duration of back pain > 3 months N (%)	54 (25.7)	8 (30.8)		0.58
Time in days between consultation with general practitioner and the DN4	28.7 ± 12.5	31.4 ± 15.0	–2.8 (–7.7–2.2)	0.28
Pain radiates below the knee, N (%)	63 (27.8)	17 (58.6)		**0.001**
Pain location only lumbar, N (%)	169 (73.5)	19 (65.5)		0.09
Use of paracetamol, N (%)	81 (36.0)	19 (65.5)		**0.002**
Use of NSAID, N (%)	87 (38.7)	9 (31.0)		0.43
Quality of life physical summary scale	44.0 ± 9.1	41.1 ± 8.1	2.9 (–0.6–6.4)	0.10
Quality of life mental summary scale	49.5 ± 10.3	48.1 ± 10.1	1.4 (–2.5–5.4)	0.48
Depressive symptomatology	9.8 ± 7.9	10.4 ± 7.0	–0.5 (–3.6–2.6)	0.73
Pain catastrophizing	13.8 ± 10.9	15.1 ± 11.7	–1.2 (–5.6–3.1)	0.57
Attitude and beliefs about back pain	26.3 ± 6.9	26.2 ± 7.2	0.1 (–2.6–2.8)	0.94

All results are presented as mean ± SD unless stated otherwise. Bold values indicate a *P*-value <0.05.

* Analyzed using Fisher's exact test.

† Analyzed using the Mann–Whitney *U* test.

BMI = body mass index; DN4 = Dolour Neuropathique en 4 questions; NSAID = nonsteroidal anti-inflammatory drug; SD = standard deviation.

Some studies reported an association between neuropathic pain and the duration of pain [38,44], but was not present in a study on patients with back pain [36]. Also, we found no association between neuropathic pain and duration of pain; however, this might be because the studies that found an association were performed in the general population. Also, in the present study, older patients may not precisely recall how long they experienced pain. However, to reduce such recall bias, patients with cognitive problems were excluded.

We also examined depression and disability because these have also been associated with neuropathic pain [7,23,46]. However, other studies reported no difference in disability and depression between patients with and without neuropathic pain [21,47]. In our patients, although disability tended to be higher in the positive group, the difference was not significant and may be due to insufficient power.

Strength and Limitations

The present study evaluated neuropathic pain in older adults reporting back pain in general practice. Other studies analyzed neuropathic pain in older adults pooled with patients of all ages. Our study provides additional information about neuropathic pain specific to older adults, which might be important because these patients might experience pain differently [4,5].

We found a low prevalence of neuropathic pain in older adults with back pain using two versions of the DN4. Due to this low number of patients scoring positive on the DN4, it is difficult to make statements about the differences between patients with and without neuropathic pain. Before we can make any firm statements about the found associations in this study, similar research should be performed in a larger population of older adults. Statistical power of this study would have increased if all patients of the Dutch BACE cohort had filled in the DN4. However, because we decided to include the DN4 measurement about halfway through the inclusion period of the BACE-study, less patients could be included. However, because we continued to include consecutive patients for this substudy, it is unlikely that we introduced selection-bias. Furthermore, we analyzed multiple variables in a small population that could have led to findings by chance.

It is thought that neuropathic pain is not just positive or negative but can be more or less neuropathic [47–49]. This is why we analyzed all scores separately and pooled patients scoring 4 or 5 on the DN4 interview plus physical examination. Still most patients scored low on the DN4. Because specific symptoms were examined in DN4, this does not mean that their pain could not have a neuropathic component, but it makes it less likely.

Conclusions and Clinical Implications

This study shows a low prevalence of neuropathic pain in older adults with a new episode of back pain (2% on the DN4 interview plus physical examination and 11% on the DN4 interview alone). Neuropathic pain seems to be associated with pain radiating below the knee, increased use of paracetamol, and higher BMI. Patients with neuropathic pain could benefit from different treatment options. Although the prevalence is low, it is important that clinicians are aware of the possibility of neuropathic pain in older adults with back pain presenting in general practice.

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Appendix A

DN4 Questionnaire

Please complete this questionnaire by ticking one answer for each item in the 4 questions below:

Interview of the Patient

Question 1: Does the pain have one or more of the following characteristics?

	Yes	No
1 – Burning		
2 – Painful cold		
3 – Electric shocks		

Question 2: Is the pain associated with one or more of the following symptoms in the same area?

	Yes	No
4 – Tingling		
5 – Pins and needles		
6 – Numbness		
7 – Itching		

Examination of the Patient

Question 3: Is the pain located in an area where the physical examination may reveal one or more of the following characteristics?

	Yes	No
8 – Hypoesthesia to touch		
9 – Hypoesthesia to prick		

Question 4: In the painful area, can the pain be caused or increased by:

	Yes	No
10 – Brushing		