SHORT REPORT

Use of and attitudes to the role of medication for acute whiplash injury: A preliminary survey of emergency department doctors

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Abstract

Objective: Describe current practice of medication prescribing for acute whiplash-associated disorders (WAD) in the ED and explore attitudes towards pregabalin prescription for WAD.

Methods: Questionnaire-based survey in two EDs collected data on demographics and self-reported medication prescribing for WAD. Comfort in various scenarios for pregabalin prescribing was rated.

Results: A total of 145/170 (85%) doctors responded; 42.8% were junior doctors. Self-reported medications prescribed were non-steroidal anti-inflammatory drug (77.9% [95% confidence interval (CI) 70.1–84.2]), paracetamol (75.2% [95% CI 67.2–81.8]), opioids (43.5% [95% CI 35.3–51.9]) and benzodiazepines (11.0% [95% CI 6.6–17.6]). Most were comfortable to prescribe pregabalin in evidence-based or advised-by-specialists scenarios.

Conclusions: Opioids appear to be over-prescribed. Further research into pregabalin prescription in ED is warranted.

Key words: motor vehicle crash, pain, pregabalin, prescribing, whiplash-associated disorder.

Introduction

Low back and neck pain were the most common contributors to disability in developed countries in 2015.¹ Whiplash-associated disorders (WAD) incur greater disability than non-traumatic neck pain,² so likely contribute to much of this burden.

Current clinical guidelines for WAD recommend exercise, maintaining usual activities and paracetamol followed by nonsteroidal anti-inflammatory drug (NSAID) (although no high-quality medication trials exist), but this approach has not been shown to prevent development of chronic pain.³ Additional management options are needed. Pregabalin, an anti-epileptic, reduces excitability of central neurons after tissue damage, blocking development of nociceptive mechanisms and may prevent transition from acute to chronic pain. We are currently assessing the effectiveness of ED administration of

pregabalin and advice to prevent the chronic pain that develops in 50% of people after whiplash injury (ACTRN12617000059369).

There are no data on the pharmacological management of WAD in Australian EDs and no evidence on the effectiveness of any medication for WAD. We aimed to describe ED doctors' prescribing practices for WAD and attitudes towards prescription of pregabalin, to inform our current research and aid future knowledge translation.

Methods

A self-administered paper questionnaire was distributed to a convenience sample of 170 ED medical staff at two EDs of Gold Coast Hospital and Health Service, Queensland. The questionnaire was piloted for face validity and distributed by trained research staff. Doctors were approached during clinical time and teaching sessions to complete the voluntary anonymous survey.

Data were collected on demographics, self-reported practice for medication prescription for acute WAD and attitudes towards pregabalin use using a range of scenarios. Data were analysed using SPSS version 22.0 (IBM Corp., Armonk, NY, USA).

Results

Of 145/170 respondents (85.3% response rate), fewer than one-third had worked in ED for over 5 years, almost half were junior doctors

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TABLE 1. Medication management of whiplash – responses by doctors of different levels of experience (n = 145)

Type of medication	Level of experience, n (%)†					Total (n = 145)
	Consultant (n = 28)	Registrar (n = 38)	Resident (n = 56)	Intern (n = 20)	Not stated (n = 3)	
Paracetamol	22 (78.6)	34 (89.5)	42 (75.0)	9 (45.0)	2 (66.67)	109 (75.2)
NSAID	28 (100)	36 (94.7)	41 (73.2)	7 (35.0)	1 (33.33)	113 (77.9)
Oral opioids	10 (35.7)	21 (55.3)	24 (42.9)	5 (25.0)	0	60 (41.4)
i.v. opioids	0	0	2 (3.6)	1 (5.0)	0	3 (2.1)
Pregabalin	0	3 (7.9)	1 (1.9)	0	0	4 (2.8)
Benzodiazepines	4 (14.3)	6 (15.8)	6 (10.7)	0	0	16 (11.0)

†Multiple responses possible.

(Intern or resident), 60% were men and 12% had never managed a patient with WAD.

The doctors listed 305 medication management responses for WAD in ED; 77.9% (95% confidence interval [CI] 70.1–84.2) of doctors routinely prescribed NSAIDs, 75.2% (95% CI 67.2–81.8) paracetamol, followed by opioids (oral and i.v.) (43.5% [95% CI 35.3–51.9]), benzodiazepines (11.0% [95% CI 6.6–17.6]) and pregabalin (2.8% [95% CI 0.9–7.3]). Most opioid (74.6% [95% CI 61.8–84.4]) and benzodiazepine (75% [95% CI 47.4–91.7]) prescriptions were from residents and registrars (Table 1).

A total of 5.5% (95% CI 2.3–10.9) of the doctors had prescribed pregabalin; 82.8% (95% CI 75.4–88.3) would consider prescribing it for WAD in a clinical trial, with 68.3% (95% CI 60.0–75.6) being comfortable/very comfortable with this; 38.6% (95% CI 30.8–47.1) would consider prescribing it for WAD in routine practice (29.7% [95% CI 22.5–37.9] were comfortable/very comfortable to prescribe it to prevent chronic pain). Many (95.9% [95% CI 90.8–98.3]), mostly more experienced doctors, were comfortable/very comfortable to prescribe pregabalin for new

radicular pain on neurosurgical registrar advice, and 90.3% (95% CI 84.0–94.4) for metastatic disease on oncologist advice (Tables 2 and 3).

Discussion

Our study highlights practice variation of medication prescription/administration for WAD in ED with 43.5% (95% CI 35.3–51.9) of doctors prescribing opioids. The seemingly high use of opioids in this ED is concerning. During traumatic stress such as after a motor vehicle crash, opioids may worsen pain

TABLE 2. For patients at risk of not recovering from a whiplash injury (i.e. pain $\geq 5/10$) – responses by doctors of different levels of experience to two questions regarding pregabalin use (n = 145)

Response to question	Level of experience, <i>n</i> (%)					Total (<i>n</i> = 145)
	Consultant (<i>n</i> = 28)	Registrar (<i>n</i> = 38)	Resident (<i>n</i> = 56)	Intern (<i>n</i> = 20)	Not stated (<i>n</i> = 3)	
Q1: Would you consider prescribing pregabalin as part of a clinical trial?						
Yes	25 (89.3)	34 (89.5)	45 (80.4)	14 (70.0)	2 (66.7)	120 (82.8)
Maybe	2 (7.1)	1 (2.6)	9 (16.1)	5 (25.0)	1 (33.3)	18 (12.4)
No	0	0	0	0	0	0
No response	1 (3.6)	3 (7.9)	2 (3.6)	1 (5.0)	0 (0.0)	7 (4.8)
Q2: Would you consider prescribing pregabalin as part of routine practice?						
Yes	10 (35.7)	17 (44.7)	26 (46.4)	3 (15.0)	0	56 (38.6)
Maybe	11 (39.3)	16 (42.1)	20 (35.7)	13 (65.0)	1 (33.3)	61 (42.1)
No	4 (14.3)	2 (5.3)	6 (10.7)	1 (5.0)	1 (33.3)	14 (9.7)
No response	3 (10.7)	3 (7.9)	4 (7.1)	3 (15.0)	1 (33.3)	14 (9.7)

TABLE 3. *How comfortable would you be to prescribe pregabalin in the following scenarios – responses by doctors of different levels of experience (n = 143)*

	Level of experience, <i>n</i> (%)					
Response to question	Consultant (<i>n</i> = 28)	Registrar (<i>n</i> = 38)	Resident (<i>n</i> = 56)	Intern (<i>n</i> = 20)	Not stated (<i>n</i> = 3)	Total (<i>n</i> = 143†)
New radicular pain on advice of neurosurgical registrar						
Very comfortable	14 (50.0)	21 (55.3)	36 (64.3)	10 (50.0)	0	81
Comfortable	13 (46.4)	17 (44.7)	16 (28.6)	9 (45.0)	3 (100.0)	58
Uncomfortable	1 (3.6)	0	1 (1.8)	0	0	2
Very uncomfortable	0	0	0	0	0	0
Unsure	0	0	1 (1.8)	1 (5.0)	0	2
Repeat prescription for chronic pain						
Very comfortable	7 (25.0)	13 (34.2)	23 (41.1)	6 (30.0)	0	49
Comfortable	15 (53.6)	20 (52.6)	24 (42.9)	13 (65.0)	1 (33.3)	73
Uncomfortable	3 (10.7)	4 (10.5)	4 (7.1)	0	2 (66.7)	13
Very uncomfortable	1 (3.6)	1 (2.6)	1 (1.8)	0	0	3
Unsure	2 (7.1)	0	2 (3.6)	1 (5.0)	0	5
New radicular pain (own decision)						
Very comfortable	5 (17.9)	8 (21.1)	7 (12.5)	3 (15.0)	1 (33.3)	24
Comfortable	17 (60.7)	20 (52.6)	30 (53.6)	7 (35.0)	0	74
Uncomfortable	4 (14.3)	8 (21.1)	12 (21.4)	7 (35.0)	2 (66.7)	33
Very uncomfortable	0	0	1 (1.8)	1 (5.0)	0	2
Unsure	2 (7.1)	2 (5.3)	4 (7.1)	2 (10.0)	0	10
Metastatic disease on advice of oncologist						
Very comfortable	13 (46.4)	19 (50.0)	29 (51.8)	9 (45.0)	0	70
Comfortable	11 (39.3)	18 (47.4)	21 (37.5)	8 (40.0)	3 (100.0)	62
Uncomfortable	1 (3.6)	0	2 (3.6)	1 (5.0)	0	4
Very uncomfortable	0	0	0	0	0	0
Unsure	3 (10.7)	1 (2.6)	2 (3.6)	2 (10.0)	0	8
Metastatic disease (own decision)						
Very comfortable	2 (7.1)	5 (13.2)	3 (5.4)	1 (5.0)	1 (33.3)	12
Comfortable	8 (28.6)	12 (31.6)	19 (33.9)	3 (15.0)	0	42
Uncomfortable	10 (35.7)	12 (31.6)	23 (41.1)	11 (55.0)	2 (66.7)	58
Very uncomfortable	0	2 (5.3)	2 (3.6)	1 (5.0)	0	5
Unsure	8 (28.6)	6 (15.8)	7 (12.5)	4 (20.0)	0	25
Starting it for trigeminal neuralgia as per therapeutic guidelines (own decision)						
Very comfortable	8 (28.6)	21 (55.3)	22 (39.3)	3 (15.0)	1 (33.3)	55
Comfortable	20 (71.4)	14 (36.8)	28 (50.0)	10 (50.0)	0	72
Uncomfortable	0	2 (5.3)	3 (5.4)	4 (20.0)	2 (66.7)	11
Very uncomfortable	0	0	0	0	0	0
Unsure	0	1 (2.6)	1 (1.8)	3 (15.0)	0	5
Starting it to prevent chronic pain in whiplash (as part of randomised controlled trial)?						
Very comfortable	7 (25.0)	12 (31.6)	7 (12.5)	1 (5.0)	0	27
Comfortable	16 (57.1)	21 (55.3)	29 (51.8)	5 (25.0)	1 (33.3)	72

TABLE 3. Continued

Response to question	Level of experience, n (%)					Total (n = 143†)
	Consultant (n = 28)	Registrar (n = 38)	Resident (n = 56)	Intern (n = 20)	Not stated (n = 3)	
Uncomfortable	1 (3.6)	1 (2.6)	10 (17.9)	5 (25.0)	1 (33.3)	18
Very uncomfortable	0	0	0	3 (15.0)	1 (33.3)	4
Unsure	4 (14.3)	4 (10.5)	8 (14.3)	6 (30.0)	0	22
Starting it to prevent chronic pain in whiplash (own decision)?						
Very comfortable	3 (10.7)	3 (7.9)	4 (7.1)	0	0	10
Comfortable	8 (28.6)	13 (34.2)	11 (19.6)	1 (5.0)	0	33
Uncomfortable	8 (28.6)	13 (34.2)	27 (48.2)	9 (45.0)	2 (66.7)	59
Very uncomfortable	0	1 (2.6)	2 (3.6)	5 (25.0)	1 (33.3)	9
Unsure	9 (32.1)	8 (21.1)	10 (17.9)	5 (25.0)	0	32

†Two doctors did not complete the questions.

outcomes.⁴ Early opioid use in ED for road traffic crash injury patients may also be associated with continued use 6 weeks later,⁵ with potential risk for opioid misuse. Reducing opioid use for acute minor injury may assist in preventing later misuse.

Although clinical guidelines for WAD recommend that muscle relaxants are not indicated in managing acute WAD, 5.2% (95% CI 3.1–8.5) of medications reportedly prescribed (by [11.0% (95% CI 6.6–17.6)] of doctors) were benzodiazepines. Further knowledge translation strategies are needed to eliminate prescribing of benzodiazepines for WAD in the ED.

We found high overall acceptability of pregabalin as possible treatment if prescribed in a research setting to develop a stronger evidence base.

Limitations

This was not a validated survey. We sampled a single health service so results may not be generalisable to other Australian EDs (although response rate was high, and the convenience sample covered nearly all the medical workforce). Sites tend to have their own guidelines and prescribing habits/culture, so comparison with other sites would be useful.

Opioids may have been underreported because they are recommended in WAD clinical guidelines only for

severe pain (measurement [prevarication] bias).

Treatment of whiplash is similar to treatment of any musculoskeletal (MSK) injury. We considered 18 respondents who had never treated whiplash were able to answer this questionnaire based on their knowledge of MSK injury management.

Conclusions

Simple analgesia is the most frequently prescribed medication in this tertiary ED, with 43.5% (95% CI 35.3–51.9) of doctors prescribing opioids and 11.0% (95% CI 6.6–17.6) benzodiazepines. A prescribing protocol for MSK injury may support consistency in practice. Our data suggest clinician support for research into pregabalin for acute WAD.

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Competing interests

GK is a section editor for *Emergency Medicine Australasia*.

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