Feasibility study of a novel pain assessment tool for improving prehospital pain management

Mohammad Iqbal†, P Anne Spaight*, Ros Kane†, Zahid Asghar†, A Niroshan Siriwardena*†*

East Midlands Ambulance Service, †University of Lincoln

Background

Pain affects 4 out of 5 patients presenting to ambulance services and is often poorly assessed and treated.[1] Currently, patients' pain is assessed by ambulance clinicians using a numerical verbal (zero to ten) pain score (NVPS). Our previous qualitative study showed that the NVPS was poorly understood by patients and that a better pain assessment tool was needed.[2] This study aimed to develop and test a novel pain assessment tool, the 'Patient Reported Outcome Measure for Pain Treatment (PROMPT)' for feasibility of use by ambulance paramedics.

Methods

The study was conducted in the East Midlands Ambulance Service NHS Trust. We conducted secondary analysis of an existing qualitative dataset to develop a draft tool. This was revised following an expert panel review by a group of 10 experienced ambulance clinicians to assess content and face validity. The feasibility study was conducted with participating paramedics using the tool in patients presenting with pain, to determine the feasibility, reliability and validity of PROMPT; to gather initial data on its effect on prehospital pain management comparing change in pain score and use of analgesia compared with a baseline period using a regression analysis.

Development of PROMPT

Findings from secondary qualitative analysis helped to identify items for inclusion in the tool (based on combination of measurements taken to assess pain and management given); items chosen for inclusion in PROMPT:

- Assessment and reassessment of pain (before and after treatment)
- Treatment given for pain : - Drug treatment and/or - Non-drug treatment

Expert panel review

Panel members selected – Subject Matter Expert; EMAS Clinicians – experience and length of service > 5 years

Review information (18 EMAS clinicians) – Cover letter, brief note about the study; PROMPT, review form, consent form

Ten responses – Responses received (55.5%)

Analysis – ✓Face validity ✓Content validity → **Findings** → **Decision to include or exclude items**

Study flow diagram

Secondary analysis of qualitative data from preliminary study[2] with focus groups (5) and interviews (28)

Literature review
- Pain and pain management
- Outcome measure
- Developing/validating tool

Development of new tool
Patient Reported Outcome Measure for Pain Treatment **(PROMPT)**

Validation of PROMPT

Expert panel review
Content and face validity with 10 ambulance clinicians(review and feedback – PROMPT understood, addressed key issues

Pilot study
- At least 12 paramedics
- At least 130 patient records
- To determine reliability and validity of PROMPT
- To refine PROMPT

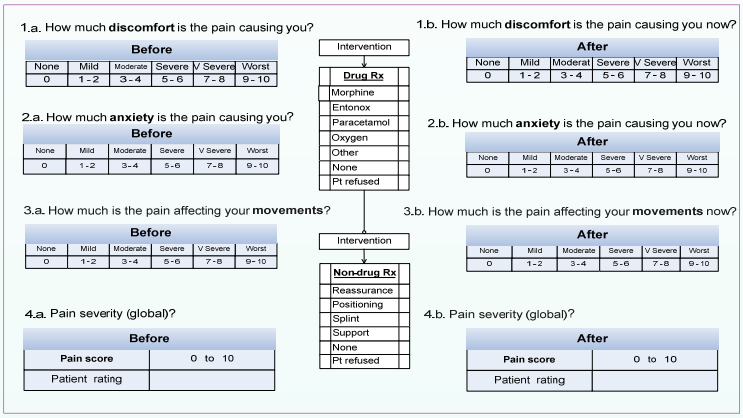
Baseline data - from electronic records; - change in pain score and use of analgesia

Data collection and analysis

- 18 paramedics were recruited as participants and trained in the study.
- 12 PROMPT forms were provided to each participant to use within two weeks.
- Data were collected for 3 months prior to using PROMPT and during their use.
- Data were entered into SPSS for analysis

Ethics approval: NRES Committee East Midlands – Nottingham 2 (REC Ref 13/EM/0130)

Patient Reported Outcome Measure for Pain Treatment (PROMPT)



Results

Reductions in pain score and greater use of analgesics in patients

- Eighteen paramedics used the PROMPT in 146 patients of which 132 had electronic data. Baseline data
- PROMPT had high internal consistency (Cronbach's alpha >0.8).
- There were significant reductions in pain score (p=0.027) and significantly greater use of analgesics (p<0.001) in patients when paramedics used PROMPT compared with their baseline practice after taking into account patients' age, clinical condition and pain score before treatment.

Table 1: Analgesic use comparing use of PROMPT with baseline

	Baseline (N=1776)		Pilot study (N=132)		Chi square
	N	%	N	%	
Analgesic					
Given	574	(32.3)	85	(64.4)	
Not given	1202	(67.7)	47	(35.6)	P<0.001
Morphine					
Given	353	(19.9)	51	(38.6)	
Not given	1423	(80.1)	81	(61.4)	P<0.001
Entonox					
Given	262	(14.8)	42	(31.8)	
Not given	1514	(85.2)	90	(68.2)	P<0.001
Paracetamol					
Given	74	(4.2)	25	(18.9)	
Not given	1702	(95.8)	107	(81.1)	P<0.001

Table 2: Outcome of pain score following use of PROMPT

Change in pain score	Baseline (N=1776)		Pilot study (N=132)		Chi square
	N	%	N	%	
Decreased	614	(34.6)	113	(85.6)	
Increased	54	(3.0)	1	(0.7)	P<0.001
No change	531	(29.9)	18	(13.6)	

Conclusion

Preliminary findings suggest that PROMPT was reliable, feasible to use in practice, and had face, content and predictive validity. In order to evaluate the effectiveness of the tool, we are conducting a non-randomised control group study comparing pain management provided by paramedics using the tool with paramedics following their usual practice.

East Midlands Ambulance Service NHS Trust

References :

1. Healthcare Commission. Patient survey report 2004 – ambulance services. Healthcare Commission. 2004. 7-4-2005
2. Mohammad Iqbal, Peggy Anne Spaight, A Niroshan Siriwardena. Investigation of Patients' and emergency clinicians' perceptions of improving prehospital pain management: a qualitative study. *Emerg Med J* April 27,2012.