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Treatment-based classification of low back pain – who are the unclear classifications?

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A recent focus in low back pain research has been to identify patient subgroups that respond best to certain treatments. To integrate these subgroup findings into a useable form, a treatment-based classification algorithm for LBP was created.[1,2] To allow the algorithm to be comprehensive – eg, provide a classification for all patients – additional criteria are provided to assist therapists' decisions for patients who do not clearly meet a treatment subgroup (*unclear classifications*).

Recent research found that approximately 34% of patients will receive unclear classifications using the algorithm.[3] It has also been shown that the reliability of the classification decision for unclear classifications is poor – significant variability between raters exists.[3] In addition to poor reliability, outcomes for patients receiving unclear classifications may be inferior to outcomes of those receiving clear classifications.[4] Thus the aim of the present study was to determine if people receiving unclear classifications are different from those with clear classifications in the hopes to refine the classification algorithm.

METHODS

Study design

- Secondary analysis of baseline data from 3 previously completed studies.[2,3,4]

Participants

- 529 consecutively recruited LBP patients seeking care.
- 446 patients had acute/subacute LBP[2,3,4] and 83 patients had chronic LBP[4]

Version of the algorithm

- 3 treatment subgroup version (no traction)[2]
- 4 treatment subgroup version[3]
- 3 treatment subgroup version (no traction), modified for chronic LBP[4]

Therapists

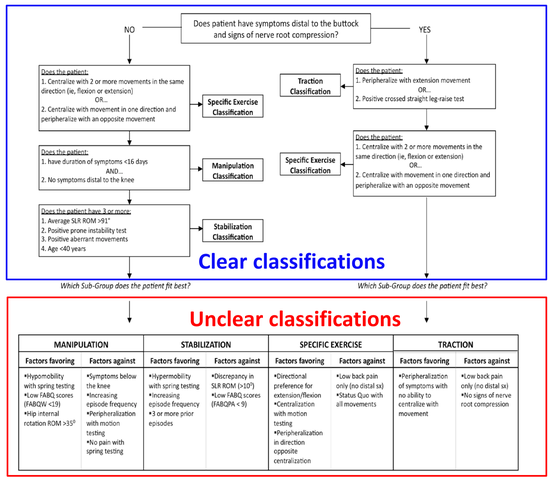
- 5 PTs considered expert in algorithm use[2]
- 10 PTs expert in algorithm; 16 PTs with minimal algorithm experience[3]
- 1 PT considered expert in algorithm use classified 96% of patients[4]

Baseline assessments

- All patients completed an 11-point pain NRS, the modified Oswestry disability questionnaire, the Fear Avoidance Beliefs Questionnaire, + a pain diagram.
- All patients then underwent a standardised history and physical exam that included:
  - Repeated movement assessment
  - Aberrant movement assessment
  - Lumbar mobility and pain response (PA pressure test), prone instability test

****Some data were re-coded to achieve consistency between the datasets**

ALGORITHM



Patients from all 3 studies were re-classified into clear/unclear classifications using the 4-treatment subgroup algorithm

Statistics:

- 10 baseline variables were chosen *a priori* to include as independent variables.
- The primary analysis was a univariate logistic regression (dependent variable: clear/unclear classification) considering all patients with LBP (*p<0.05, **p<0.01, ***p<0.001)
- This was followed by a multivariate regression analysis, placing all factors in (significant results indicated by yellow highlight).
- Two sensitivity analyses were undertaken (identical methodology to above): 1) Acute/subacute LBP; 2) Chronic LBP

RESULTS

All LBP

Independent variables	Clear classification	Unclear classification	Univariate analysis	
			OR	95% CI
Age (years)	38.7 (5.7)	41.1 (6.0)	1.02*	1.003 – 1.033
Gender (% male)	51.0	46.7	0.84	0.60 – 1.19
Duration of symptoms (days)	90.8 (36.3)	296.3 (159.0)	1.001*	1.000 – 1.001
Previous episodes of LBP (% Yes)	75.3	83.1	1.61*	1.04 – 2.49
Frequency of previous episodes (% increasing)	29.7	28.2	0.93	0.60 – 1.45
Symptoms distal to the buttock (% Yes)	53.0	46.7	0.78	0.55 – 1.10
Initial FABQ-PA score	15.9 (2.6)	14.2 (2.9)	0.98**	0.96 – 0.996
Initial FABQ-W score	16.0 (5.5)	13.5 (5.4)	0.98*	0.96 – 0.99
Initial ODQ	36.4 (7.5)	30.6 (7.8)	0.98**	0.96 – 0.99
Initial Pain score	5.7 (0.11)	5.6 (0.13)	0.97	0.89 – 1.07

SENS. RESULTS

Acute/subacute LBP

Independent variables	Clear classification	Unclear classification	Univariate analysis	
			OR	95% CI
Age	38.9 (11.6)	39.9 (11.8)	1.01	0.99 – 1.02
Gender (% male)	49.4	54.0	0.86	0.56 – 1.20
Duration of symptoms (days)	25.6 (25.8)	45.5 (24.2)	1.03***	1.02 – 1.04
Previous episodes of LBP (% Yes)	54.9	50.9	1.32	0.84 – 2.07
Frequency of previous episodes (% increasing)	30.7	29.5	0.85	0.67 – 1.07
Symptoms distal to the buttock (% Yes)	54.8	51.1	0.85	0.58 – 1.24
Initial FABQ-PA score	16.4 (5.1)	14.9 (5.6)	0.95**	0.92 – 0.99
Initial FABQ-W score	15.8 (11.0)	14.9 (11.0)	0.99	0.97 – 1.01
Initial ODQ	38.2 (13.8)	33.9 (15)	0.98**	0.97 – 0.99
Initial Pain score	5.7 (1.9)	5.6 (1.9)	0.98	0.88 – 1.08

Chronic LBP

Independent variables	Clear classification	Unclear classification	Univariate analysis	
			OR	95% CI
Age	37.4 (10.8)	45.4 (11.3)	1.07**	1.02 – 1.12
Gender (% male)	22.6	38.5	2.14	0.78 – 0.59
Duration of symptoms (days)	665 (811)	1131 (2348)	1.00	1.00 – 1.001
Previous episodes of LBP (% Yes)	96.7	100	---	---
Frequency of previous episodes (% increasing)	25.3	25.0	1.10	0.38 – 3.14
Symptoms distal to the buttock	35.5	32.7	0.88	0.35 – 2.25
Initial FABQ-PA score	11.8 (5.1)	11.6 (5.5)	0.99	0.91 – 1.08
Initial FABQ-W score	17.4 (11.3)	9.9 (9.7)	0.94**	0.89 – 0.98
Initial ODQ	20.5 (15.2)	19.4 (12.2)	0.99	0.96 – 1.03
Initial Pain score	6.5 (1.4)	5.9 (2.0)	0.81	0.62 – 1.05

People who had an unclear classification tended to be less affected by their back pain (less disability/fear avoidance beliefs) although they had a longer duration of symptoms than those with clear classifications. These findings raise the possibility that people with unclear classifications may benefit from:

- A general exercise approach (supervised, long duration, high intensity)[5] → add a subgroup to the algorithm?
- Minimal intervention of advice and reassurance[6] → exclude them from the algorithm?

Future trials should compare the modified algorithm to previous versions to determine if the modifications result in better outcomes.

Refs: 1. Fritz et al *JOSPT* 2007. **2. Brennan** et al *Spine* 2006 **3. Stanton** et al *Phys Ther* 2012 **4. Apeldoorn** et al *Spine* 2012 **5. Hayden** et al *Ann Intern Med* 2005 **6. Hill** et al *Lancet* 2011.