Treatment-Based Classification and Low Back Pain—Sharpening the Two-Edged Sword of Clinical Decision-Making

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1. Introduction:

Delitto et al\textsuperscript{1} proposed "the treatment-based classification (TBC) approach that had three levels of classification based on historical information, behavior of symptoms, and clinical signs. At first, they distinguished patients whose conservative care can be managed predominantly and independently by physical therapists versus patients who require consultation with other services (eg, psychology) or who require referral because of possible serious non-musculoskeletal pathology should be identified. Once patients who could be managed by physical therapists are identified, the next level of classification was to stage their condition with regard to severity. The authors proposed three stages: stage I for patients in the acute phase where the therapeutic goal was symptom relief, stage II for patients in a sub-acute phase where symptom relief and quick return to normal function were encouraged, and stage III for selected patients who might return to activities requiring high physical demands and who demonstrated a lack of physical conditioning necessary to perform the desired activities safely. The third level of classification was for stage I only in which patients were classified into distinct categories that were treatment-based and that specifically guided conservative management."

Amongst many other currently existing approaches, Mechanical Diagnosis and Treatment (MDT), Treatment Based Classification (TBC), Pathoanatomic Based Classification (PBC), Movement System Impairment Classification (MSI), and O’Sullivan Classification System (OCS) schemes were the most commonly used clinical decision making algorithms reported by experts and novice therapists in their management of LBP.\textsuperscript{2}

ABSTRACT

“Treatment-based classification (TBC) is an approach to subgrouping patients with "nonspecific" lower back pain (LBP), focused on identifying clusters of findings from the history and clinical examination which predict a more favorable outcome with a specific treatment approach.” The objective of this editorial was to provide an overview of development of TBC and its use in evaluation and management of patients with LBP from an evidence-informed perspective.

Key words: treatment-based classification, low back pain, clinical decision making algorithm.

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2. Validity of TBC:

2.1. Construct validity:

George and Delitto\textsuperscript{4} found that the TBC groups differed on present pain intensity, duration of LBP, and history of LBP. Present pain intensity, duration of LBP, total lumbar flexion, presence of leg
pied, and history of LBP correctly classified 65% for specific exercise, 45% for mobilization, and 32% for immobilization.

2.2. Discriminant validity:

Differences in transversus abdominis (TrA) and lumbar multifidus muscle thickness measured using rehabilitative ultrasound imaging were noted between controls and both the direction specific and stabilization categories at the L4-L5 level, between control and direction specific category for the L5-S1 level, and between controls and all 3 categories for the TrA.

3. Reliability of TBC:

The overall % agreement, categorizing patients into one of four classifications was 80% and for each of five subgroups-pain modulation, stabilization exercise, mobilization and training, inter-rater agreement was 90%, 83%, 58% and 89% respectively. Reliability of the TBC decision-making algorithm was moderate with a percentage of agreement=67%.

4. Subgroup-specific studies:

Baseline elevation in fear-avoidance beliefs about work and lack of centralization phenomenon predicted higher disability; and, lack of centralization phenomenon predicted higher pain intensity in patients classified into specific exercise subgroup under TBC.

5. Advantages of TBC:

A recent systematic review found that the TBC approach enhanced clinical decision making, and improved clinical outcomes in patients with LBP.

5.1. Population-specific application of TBC:

Burns et al outlined. A three-level approach to TBC in athletic population: "(1) Screening the patient for potentially serious conditions that are not appropriate for conservative management; Staging the athlete (based on current disability ratings and ability to perform functional activities); and, treatment interventions are selected on the basis of the athlete's signs and symptoms." Clifford and Fritz studied children and adolescents with LBP using TBC and found that the physical examination findings indicated spinal stabilization approaches for many patients.

6. Limitations of TBC:

6.1. Lack of clarity in identifying subgroups:

People with older age, chronic LBP, previous LBP, less fear-avoidance beliefs (work and physical activity), and less LBP-related disability were likely to be classified under 'unclear' subgroup. Based on individual subgroup criteria, 25.2% of the participants did not meet the criteria for any subgroup, and only 49.6% of the participants met the criteria for only one subgroup, and 25.2% of the participants met the criteria for more than one subgroup.

6.2. Influence of therapist’s experience:

Novice therapists were least likely to agree on a classification of stabilization subgroup, and the most common conflict of disagreement was between manipulation and stabilization.

6.3. Influence of psychosocial factors:

There is no specific subgroup to address psychosocial factors and a recent study found that TBC administered together with behavioral graded activity training was better than TBC alone while another study comparing TBC versus TBC and graded activity/graded exposure did not.

7. Implications for PT practice:

7.1. Evaluation:

George and Hirsh developed a questionnaire assessing patient satisfaction with symptoms which allowed patients to distinguish between satisfactions with treatment effect versus treatment delivery.

7.2. Treatment:

Selection of treatment techniques other than those mentioned in TBC could also be done, depending upon the coherent clinical reasoning process, as was suggested by George for the slump stretching. Combination of classification systems also provide a viable alternative and TBC could be pragmatically combined with mechanism-based classification (MBC) for better results.

8. Implications for PT education:

A survey by Spoto and Collins found that only 9% of PTs who were certified...
orthopedic specialists used TBC in their routine practice for diagnosing LBP. There is thus a dearth need for future continuing professional development programmes to develop knowledge and skills about TBC among therapists.

9. Ongoing research:

There is also need for future economic analyses such as the study by Apeldoorn et al. in cost effectiveness of TBC.

10. Other disorders:

Numerous other disorders were classified according to TBC such as Mechanical neck pain, pediatric supracondylar humerus fractures, hypertension, facial neuromotor disorders, diabetic foot and distal radius fractures. MNP is the only other musculoskeletal pain condition classified with TBC in PT and the evidence was insufficient. The other disorders utilized the TBC terminology and described their own specific interventions be it medical or surgical.

11. “The two-edged sword:”

Therapists should be aware of the patients’ clinical presentation, TBC system’s measurement and utilization properties, and their own knowledge and skills prior to successful decision making in evaluation and management of people with LBP.

CONFLICTS OF INTEREST

None identified and/or declared.

REFERENCES:


