Predicting and Preventing Chronic Postsurgical Pain and Disability

Despite increasing knowledge regarding pain treatment, an alarming proportion of patients (up to 70% depending on surgery type) develop chronic postsurgical pain. The lack of reliable models to predict and prevent such a course was recently addressed in two highly valuable reviews. In summary, a large number of studies have identified several biomedical risk factors, such as type of surgery or level of postoperative pain. However, recent research has indicated that psychosocial factors, such as preoperative anxiety and catastrophizing, may be of particular importance. Unfortunately, findings on psychological variables are rather heterogeneous, and it remains to be clarified whether such factors are causally related to the development of chronic pain or mainly associative. There is a need to explore more systematically the roles of clearly defined and theoretically relevant psychological variables to build a coherent model that is better able to predict and prevent chronic postsurgical pain and disability successfully.

In general, the development of such a model should be based on a well-organized theoretical framework. Learning theory (i.e., classic and operant conditioning) is an empirically well-supported model to predict and influence human behavior, and it has been instrumental in the evolution of cognitive behavioral treatments. The role of cognitive behavioral treatments in chronic pain treatment is well established today, and a large body of research supports the idea that behavioral strategies used to deal with pain (e.g., avoid or approach) are more relevant to subsequent suffering and disability than the level of pain intensity. Accordingly, a shift in focus from pain-related experience to behavior can be useful to identify and directly target processes that may be central to the development of chronic pain and disability.

Recent developments within cognitive behavioral treatments, such as Acceptance and Commitment Therapy (ACT), have emphasized acceptance of, or willingness to experience, chronic pain and distress rather than trying to control or reduce such symptoms. In ACT, people’s unwillingness to remain in contact with negative private events (e.g., pain) is seen as an important determinant of emotional turmoil and dysfunctional behavior. In avoiding unpleasant private experiences, that is, experiential avoidance, people commonly engage in behaviors that may not only produce short-term symptom relief but also prevent activities in line with personally relevant life values (e.g., visiting friends). Importantly, frequent use of avoidance strategies tends to produce, over time, a narrow and inflexible pattern of action dominated by the intent to minimize symptoms (e.g., pain). As illustrated in figure 1, this pattern often results in increased disability without any corresponding decrease in symptoms. The perceived need to avoid negative private experiences is considered to result from cognitive fusion, a process in which thoughts about an event become merged with the actual event, thus evoking the same emotional reactions and behaviors as the event itself. Expressed differently, cognitive fusion is manifest when psychological experiences have an excessive or improper effect on the behavior, thereby bringing the individual farther away from valued living (fig. 1). The individual’s inability to act effectively in accordance with personally relevant life values in the presence of unpleasant thoughts, emotions, or bodily symptoms is referred to as psychological inflexibility. Behaviors characterized by psychological inflexibility (e.g., unwillingness, avoidance, and cognitive fusion) have been shown to contribute to a range of psychological and medical problems, such as work absence, depression, and increased medication use. In fact, the tendency to avoid negative experiences paradoxically seems to make people more vulnerable to a variety of stressors, such as pain and anxiety. In contrast, the ability to be present with unpleasant private experiences while still taking effective actions (psychological flexibility) seems highly relevant to optimize functioning and quality of life.

Within the area of pain, empirical support for processes related to psychological flexibility has grown rapidly during the past decade. For example, various laboratory studies have shown that acceptance may increase pain tolerance more effectively than strategies aimed at controlling pain. In samples with chronic pain patients, psychological flexibility has been associated with, for example, lower levels of depression, disability, and pain. Clinical treatment evaluations (randomized controlled trials and large open trials) have illustrated that interventions based on ACT can improve functioning and quality of life for patients with chronic debilitating pain. Also, recent analyses suggest that psychological flexibility may mediate the effects of pain and distress on disability. Thus, although pain or distress may lead to disability, this relationship seems to be significantly mediated by psychological flexibility.
The Psychological Inflexibility in Pain Scale was recently developed to assess avoidance and cognitive fusion, that is, psychological inflexibility.4-6 First, psychological inflexibility may be a central mediating process in this transition. Second, longitudinal studies have indicated that it may predict future functioning and pain adjustment.7,8 Second, longitudinal studies have indicated that it may predict future functioning and pain adjustment.7,8 Third, results from ACT-based interventions have shown that psychological flexibility is sensitive to change, and that improvements in psychological flexibility have been associated with increased functioning and life quality.7,12

The Psychological Inflexibility in Pain Scale was recently developed to assess avoidance and cognitive fusion, that is, the key aspects of psychological inflexibility,5,11 in patients with existing pain. The Psychological Inflexibility in Pain Scale is a reliable and valid instrument and may thus be used in, for example, the subacute postoperative stage to explore the importance of psychological inflexibility in the development of chronic postsurgical pain. Furthermore, instruments such as the Psychological Inflexibility in Pain Scale could possibly be utilized to identify patients at risk for developing chronic pain and disability. For this group of patients, interventions based on ACT (e.g., promoting acceptance of pain and supporting value-oriented behavior) may be useful to improve the ability to adjust to remaining postsurgical pain and distress. More specifically, pain management based on ACT has the potential to increase pain tolerance, facilitate effective action, and contribute to the prevention of dysfunctional behavior that may otherwise result in depression, social withdrawal, pain-related disability, and lower quality of life.

In conclusion, psychological inflexibility seems to play an important role in chronic pain. On the basis of these findings, we propose that this may be a particularly relevant factor in the transition from acute to chronic pain and therefore suggest this as a focus for future studies aimed at developing a coherent model to predict and prevent chronic postsurgical pain and disability.