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Original Contribution

Effectiveness of integrating individualized and generic complementary medicine treatments with standard care versus standard care alone for reducing preoperative anxiety☆

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Abstract

Study Objective: Preoperative anxiety is commonly reported by people undergoing surgery. A significant number of studies have found a correlation between preoperative anxiety and post-operative morbidity. Various methods of complementary and alternative medicine (CAM) were found to be effective in alleviating preoperative anxiety. This study examined the relative effectiveness of various individual and generic CAM methods combined with standard treatment (ST) in relieving preoperative anxiety, in comparison with ST alone.
Design: Randomized controlled trial.

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Setting: Holding room area
Patients: Three hundred sixty patients.
Interventions: Patients were randomly divided into 6 equal-sized groups. Group 1 received the standard treatment (ST) for anxiety alleviation with anxiolytics. The five other groups received the following, together with ST (anxiolytics): Compact Disk Recording of Guided Imagery (CDRGI); acupuncture; individual guided imagery; reflexology; and individual guided imagery combined with reflexology, based on medical staff availability.
Measurements: Assessment of anxiety was taken upon entering the holding room area (surgery preparation room) ('pre-treatment assessment'), and following the treatment, shortly before transfer to the operating room ('post-treatment assessment'), based on the Visual Analogue Scale (VAS) questionnaire. Data processing included comparison of VAS averages in the 'pre' and 'post' stages among the various groups.
Main Results: Preoperatively, CAM treatments were associated with significant reduction of anxiety level (5.54-2.32, $p < 0.0001$). In contrast, no significant change was noted in the standard treatment group (4.92-5.44, $p = 0.15$). Individualized CAM treatments did not differ significantly in outcomes. However, CDRGI was less effective than individualized CAM ($P < 0.001$), but better than ST ($p = 0.005$).
Conclusions: Individual CAM treatments integrated within ST reduce preoperative anxiety significantly, compared to standard treatment alone, and are more effective than generic CDRGI. In light of the scope of preoperative anxiety and its implications for public health, integration of CAM therapies with ST should be considered for reducing preoperative anxiety.

1. Background

1.1. Preoperative anxiety

For many patients, surgery is perceived as a negative experience due to significant preoperative anxiety, reported by 11% to 80% of adult surgery patients [1–3]. The preoperative anxiety condition is liable to cause physiological responses, such as changes in glucose metabolism in various brain regions, similar to anxiety disorders [4], activation of the sympathetic nervous system with increased blood pressure and accelerated pulse, as well as activation of the endocrine and immune systems similar to a mental stress response [5], thus affecting the status of the immune system [6–8].

The preoperative anxiety state may influence the course of the operation and the subsequent recovery period. Anxiety has been found to be in direct correlation with increased consumption of sedatives, $r = 0.48$ [9], longer surgery time [10], intensified post-surgery pain [11], increased nausea and vomiting [12,13], prolonged hospitalization and rehabilitation [14], increased risk of implant rejection [15], and longer recovery time [16]. Moreover, preoperative anxiety is a significant predictor of mortality in cardiovascular surgery patients (OR = 5.1) [17]. Therefore, alleviating preoperative anxiety is of great significance in terms of patient's health and wellbeing.

1.2. The standard treatment (ST) for alleviating preoperative anxiety

1.2.1. Nonpharmaceutical methods (treatment)

Providing pre-intervention information was found to be effective in alleviating anxiety before dental surgery, and gastro-intestinal endoscopy [17,18]. Treatment for alleviating preoperative anxiety in children by therapeutic clowning was researched by Vagnoli et al in a randomized controlled clinical trial and was found to be effective [19]. In another study, the effect of therapeutic clowning turned out to be more effective in the holding room compared with a control group which received premedication with the anxiolytic Midazolam [20]. Another treatment tested the effect of heated blankets on adults prior to neurosurgery in the holding room for relieving anxiety. Indeed, although this treatment resulted in a comfortable and pleasant feeling in patients, the results were not significant compared to standard Midazolam treatment ($P = .11$) [21].

1.2.2. Pharmaceutical methods (therapies or treatments)

Anxiolytic medications are administered prior to surgery. These drugs are muscle relaxants which alleviate stress and thus temporarily ameliorate sensations of anxiety. Some of these drugs are designed to be swallowed once, before the surgical intervention, and others need to be administered several times on the day before surgery and, again, on the day of surgery itself. Several studies have demonstrated moderate effectivness of anti-anxiety drugs as part of preliminary medicinal treatments (premedication) prior to surgery, among them Midazolam [22], Gabapentin [23], Diazepam [24] and Oxazepam [25]. Indirectly, these drugs also affect the prevention or alleviation of symptoms and postsurgical morbidity [26]. Although these drugs do have some side effects and contraindications, they do not pose a clinically significant limitation in their widespread administration [27,28].

1.3. Complementary and Alternative Medicine (CAM) treatment for preoperative anxiety

CAM is a medical-therapeutic approach that is not considered to be in the mainstream of medical practice in a