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Trait Anxiety and Trait Anger: A comparison of Peptic Ulcer and Bronchial Asthma Patients

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Sixty-five non-selected peptic ulcer disease (PUD) and bronchial asthma (BA) patients were matched with 65 surgical/orthopaedic patients were studied in the present investigation. Psychological assessment was done by Hindi version of Spielberger's T-Anxiety Scale of STAI and T-Anger Scale of STAXI. The results of one-way ANOVA indicate that there was a significant difference among the PUD and BA patient groups and surgical/orthopaedic controls in terms of trait anxiety and trait anger ($P < .001$). The post-hoc comparison (Duncan's test) revealed that both the PUD and BA patient groups differed significantly from their patient control on trait anxiety. However, only BA patients differed significantly from surgical/orthopaedic controls on trait anger. The findings highlight the disease-specific association of negative emotion (t-anxiety and t-anger) in PUD and BA patients. The results are discussed in the light of available literature.

The role of psychosocial factors in various disorders like peptic ulcer has been a subject of systematic investigation for many years. These factors included stressful life events, emotional vital signs e.g.; anger, anxiety depression and several personality variables (Ghosh, 1999; Sharma, Ghosh & Spielberger, 1995; Feldman, Walker, Green & Weingarden, 1986; Walker, Luther, Samloff & Feldman, 1988; Sharma, Ghosh & Sharma, 2004).

In spite of the fact that both laymen and clinicians have pointed out their relevance, the psychophysiological aspects of gastrointestinal disorders especially their influence on etiology and pathophysiology have been a matter of controversy and a challenge to the researchers after discovery of Helicobacter pylori (H-pylori) which initially proved to be a key and curable element in the ulcer. This is quite unfortunate since research on behavioural aspects is highly relevant to general understanding and management of psychophysiological disorders. While this surge of biological reductionism is undesirable, McCollkel Et-Nujumi; Chittajallu; Dahill; Dorrian; El-Omar et al. (1993) opined that H-pylori is inadequate as a sole explanation for peptic ulcer. They observed that most people who harbour the organism never have ulcers, while a few who have never been infected with it or taken non-steroidal anti-inflammatory drugs (NSAID) develop ulcer disease. Peterson and Graham (1997) argued that attempts to explain ulcer using H-pylori and NSAID on the sole etiologic factor are destined to fail. Levenstein (1998, 1999) opined that although psychological stress in ulcer is less studied in the recent times, however, the evidence that psychological stress and other stress induced potential risk factors e.g., high serum

pepsinogen concentrations, cigarette smoking and intake of alcohol, aspirin or coffee work in conjugation with H-pylori. However, Cheng, Macera, Davis and Blair (2000) reported that although H-pylori have been identified as a major cause of chronic gastritis, not all infected persons develop ulcers. This testifies to the role of factors additional to infection in peptic ulceration.

The importance of emotional disturbances in the pathogenesis of peptic ulcer disease (PUD) – ulcerating lesions in the stomach or duodenum – and in other psychophysiological illness has been widely reported. Evidence that psychological stress has a role in the development of ulcer arises from a variety of sources. Epidemeological evidence has shown that ulcer both in stomach and duodenum to be more common in war time than peace, among prisoners of war, in urban rather than rural populations and in number of stressful occupations including surgeons, air traffic controllers. Several studies have been reported on etiological effect of aspect of stress and emotions on ulcer (Nice, Garland Hilton, Baggett and Mitchell, 1996; Cobb and Rose, 1973; Castipovic, Micunovice, Castipovic Mujic & Lau, 1993).

Researchers consistently report that when compared to healthy or hospitalised controls, peptic ulcer disease patients are more anxious (Sharma et al. 1995; Sreedhar, 1989; Hoq et al. 1999). Magni et al. (1988) found duodenal and gastric ulcer patients to have similar personality profiles characterized by greater anxiety. Some western studies have tried to explain as to how anxiety is a contributor to peptic ulcer disease. Peters and Richardson (1983) reported that excessive acid secretion, which contributes to ulceration, is further increased with the emotion of anxiety. Levenstein et al. (1996) argued that level of stress and anxiety impairs healing of ulcers through their effects on hormonal functions.

A group of investigators showed that peptic ulcer patients manifested more anger, particularly suppression of anger (Funkenstein, King and Drolette, 1957; Hasenbring, 1987; Waker et al., 1988). Another group of studies attempted to investigate TABP, which include hostility as a major component in ulcer and reported no significant association between TABP and peptic ulcer (Langeluddecke, Goulstoen and Tennant, 1987). However, some studies have reported higher aggression and hostility in peptic ulcer patients (Keltikangas-Jarvinen, 1987; Peters and Richardson, 1983). Sharma et al. (1995) reported higher suppression of anger in peptic ulcer patients.

Asthma – a respiratory disorder characterized by recurrent airways obstruction – has traditionally been considered one of the major psychosomatic disorders. The clinical manifestations of asthma include paroxysmal dyspnoea and wheezing, accompanied particularly in the middle-aged patients by cough and sputum (see Crofton and Douglas, 1981). While a considerable research has been devoted to role of psychological process in asthma, it has been contended that no consistent picture of the psychology of asthma has emerged.

The negative emotions like anxiety and anger have been found to play a vital role in bronchial asthma (Bitti, Gremigni and Baldi, 1997; Tovt-Kershynska Dew, Chopey Spivak and Lenko, 2001). It has been observed that the severity of the asthmatic condition and its clinical course are strongly influenced by such emotions (see Steptoe, 1984). Asthmatics as a group have been found to be more anxious than their normal counterparts (Teirama, 1979). Cano and Fernandez (1990) studied presence of anger and anxiety symptoms in male and female adolescents and adults with asthma and normal controls. Significant differences in trait anxiety, trait anger, anger

out, and anger expression was found between asthma patients and controls. Investigators have also documented that anxiety plays a large role in the initiation, exacerbation and maintenance of asthmatic symptomatology (Agarwal and Sethi, 1978; Frost, 1990; Sreedhar, 1989). All these studies have found asthmatics to be highly anxious. Unlike the research on role of anxiety few studies explored the role of anger in bronchial asthma. Some investigators observed asthmatic patients manifested more anger (see Matus, 1981; Northup and Weiner, 1984); others reported asthmatics exercise greater suppression of anger (Alock, 1960; Florin, Freudenberg and Hollaender, 1985; Hollaender and Florin, 1983), still others noted asthmatics showed more expression than suppression of anger (e.g., Chiari, Foschino-Barbaro, Nuzzo, Pecci and Rossi, 1987).

In the present study male confirmed peptic ulcer disease (PUD) and bronchial asthma (BA) patients have been compared with patient control group of surgical/orthopaedic patients in terms of trait anxiety and trait anger.

Method

Patient Group

Sixty-five non-selected out patients referred for endoscopic diagnosis of peptic ulcer disease to gastroenterology department of Indira Gandhi Medical College/Hospital. Diagnostic confirmation of active peptic ulcer was made by senior gastroenterologist of the hospital. All the patients were consequently put on maintenance therapy of NSAIDs. All the PUD patients were male married and had a middle class background. The mean age of all the patients was 45.60 (± 6.90 SD) years. None of them reported a history of CHD or other non-vascular disorders.

Likewise bronchial asthma group comprised of sixty-five non-selected out patients attending the respiratory clinic of same hospital. These patients were considered for the study after the specialist's diagnosis of bronchial asthma. All of them suffered from acute bronchial asthma and were not on prophylactic medicine. All the patients were male married and had a middle class background. The mean age of all the asthmatic patients was 44.75 (± 5.75 SD) years. None of them reported a history of CHD or non-CHD disorders.

Control Group

Control group comprised of 65 male surgical/orthopaedic outdoor patients. These patient controls were matched with the PUD patients and bronchial asthma (BA) patients so as to have similar distribution of age ranges (25-35, 36-45 and 45+ years). They were all married and had more or less similar educational and socio-economic background to their PUD and BA patient counterparts. None of them also had a history of CHD or non-CHD illness.

Measures

State-Trait Anxiety Inventory (STAI): Trait anxiety was measured by the Hindi-language version of STAI (Spielberger, Sharma and Singh, 1973).

State-Trait Anger Expression Inventory (STAXI): The Hindi adaptation of Spielberger's (1988) STAXI (see Sharma, Krishna & Spielberger 1996, 2004) was used to assess Trait anger (T-anger).

Both STAI and STAXI are excellent tools for cross cultural research and provide consistent, reliable and valid scores.

Results

In order to assess the difference on trait anxiety and trait anger among the two patient groups (PUD and BA) and surgical/orthopaedic controls, one-way ANOVA was carried out. Post-hoc comparisons were made by Duncan's new multiple range test. There were significant differences on trait anxiety ($F = 41.18$, $P < .001$), and trait anger ($F = 5.44$, $P < .001$) between the PUD and BA patient groups and their surgical/orthopaedic controls.

Table 1: One-way ANOVA on negative and positive impact of life changes, trait anxiety and trait anger for two patient groups (peptic ulcer and bronchial asthma) and surgical/ orthopaedic controls

Variables	SS		MS		F Ratio
	Between	Within	Between	Within	
	(2)		(192)	(2)	(192)
Trait Anxiety	3089.52	7201.65	1544.76	37.50	41.18*
Trait Anger	155.29	2736.89	77.64	14.25	5.44*

*P < .001

Table 2: Duncan's multiple range test on adjusted means of negative and positive impact of life changes, trait anxiety and trait anger for two patient groups (peptic ulcer and bronchial asthma) and surgical/orthopaedic controls (at alpha value .01)

Variables	Patient Groups		
	Surgical Orthopaedic	Peptic Ulcer	Bronchial Asthma
Trait Anxiety	39.83	47.55	48.84
Trait Anger	18.06	19.46	20.21

Note: The underlined values of means indicate the absence of significant differences

In terms of trait anxiety, both the patient groups differed significantly from their patient controls (P < .01 Duncan's test). The PUD patients occupied highest level with asthmatics falling in the intermediate range and surgical orthopaedic patients at the lowest level. In terms of trait anger only asthmatics differed significantly from surgical/orthopaedic controls (P < .01 Duncan's test). There was no significant difference on trait anger between the PUD and BA patient groups and between peptic ulcer patients and controls.

Discussion

One of our major findings was PUD and BA patients when compared to their comparable controls signified their higher anxiety proneness. Trait anxiety has been found to be a causative factor in ulcer. Several studies have reported higher anxiety among ulcer patients than controls (Langeluddecke et al. 1987; Tennant, 1988). Some other studies also attempted to explain as to how trait anxiety acts as a contributor to peptic ulcer disease. These studies reported excessive acid secretion, which contributes to ulceration, is influenced by interaction of anxiety with neural activation, which in turn affects the gastro-intestinal functions (Peters and Richardson, 1983; Noyes, 1986). Levenistein et al. (1996) found among various psychosocial, behavioural factors and use of NSAIDs, only anxiety as a baseline characteristic significantly associated with poor healing of ulcers. In a recent study Sharma, Ghosh and Sharma (2004) reported significantly higher trait anxiety (anxiety proneness) in peptic ulcer patients than their comparable controls. Additionally, Sharma et al. (2004) found trait anxiety as the most potent discriminator between the peptic ulcer and their control counterparts.

Trait anxiety was also found to be significantly higher among the BA patients than the controls. Such findings are by and large consistent with the earlier research in different countries. Cano et al. (1999) have shown anxiety to be a chief characteristic of asthma patients and found significantly higher anxiety among adolescents than their controls. Similar finding was earlier reported by Frost (1990). Shanmugan and Kalipappan (1982) observed anxiety levels of normals, asthmatics, ulcer patients and neurotics and found normals at the lowest and followed by ulcer patients, asthmatics and neurotics.

It was noted that only bronchial asthma patients differed from controls in terms trait anger. As early as 1956 Ibor reported that the asthmatics as a group manifested significantly more anger than the normals. Teiramaa (1979) observed that asthmatic attacks were related to anger. Later Matus (1981) argued that a variety of psychological conditions including anger might provoke asthma attacks. Earlier Ramachandran, Thiruvengadam, and Zackria (1977) identified emotional factors in asthmatic and tuberculosis patients and observed that asthmatic patients specifically manifested excessive anger. Cano and Fernandez (1999) found adults and adolescents with asthma manifested greater trait anger than their normal controls in Spain. To some extent these studies indicate anger as a risk factor in bronchial asthma and may act as a psychological stimulant, which may cause changes in respiration and also acts as confounder or mediator that elicits respiratory distress.

The results further suggest that negative emotional factors are more frequent in PUD and particularly in BA patients who reported higher negative emotion of anxiety and anger than controls. Whether therapy specifically directed toward these emotional disturbances would have a beneficial effect on the course of these disorders is an intriguing question and calls for further investigation.

This study emphasizes that the findings may not be specific for PUD and BA as opposed to other illness commonly believed to have a psychosomatic origin. Nevertheless the findings of this study assume added importance for designing disease-specific intervention programme keeping in view the culture-specific perspective.

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