

## NON ULCER DYSPEPSIA AND ITS CORRELATION WITH LIFE STRESS, ANXIETY AND DEPRESSION

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### ABSTRACT

*Non ulcer dyspepsia is essentially a diagnosis of organic disease exclusion. Non ulcer dyspepsia falls under the rubric of functional bowel disorder. Life stress, anxiety and depression may be important to the onset or exacerbation of this condition. The effect of life stress, anxiety and depression on non ulcer dyspepsia vary from region to region and group of population. Patients who had dyspepsia and undergone successful upper G.I. endoscopy at the M.G.M. Medical College, M.Y.Hospital, Gastroenterology Unit, between January 1997 and November 1997 and showed no organic lesion were tested for life stress, anxiety and depression. They were compared with healthy persons of comparable age, sex and social status on scales of life stress, anxiety and depression. Of the 38 patients with non ulcer dyspepsia, 26 (68%) experienced undesirable events, 35 (92%) significant anxiety. Undesirable life events were statistically insignificant and anxiety was significantly related to non ulcer dyspepsia. While other psychological variable, depression was seen in all 38 (100%) cases, but was not statistically related to non ulcer dyspepsia.*

*Key words: Non ulcer dyspepsia, stressful life events, anxiety and depression*

Non ulcer dyspepsia (NUD) is the term most commonly used to describe a heterogeneous and often ill defined group of dyspepsia patient whose symptom of upper abdominal pain, discomfort or nausea persist in the absence of identifiable cause. The aim of this study was to assess if psychological factors like life stress, anxiety and depression are associated with non-ulcer dyspepsia. Recent studies also show that disordered pattern of upper gastrointestinal motility are present in NUD.

Dyspepsia is a common symptom, but majority of patients with dyspepsia do not have peptic ulceration. These patients are collectively labeled as NUD. There are no definite etiological factors for NUD. Numerous studies correlate different aspects with NUD. A number of factors like use of non-steroidal anti inflammatory drugs, coffee, tea, alcohol, cigarette smoking and diet have been proposed as risk factors for NUD. Some

studies have correlated H. Pylori and NUD. Various studies, however, established a definite correlation between psychological factors like life stress, anxiety and depression with NUD. Given evidence that the psyche affects both gastrointestinal processes and their subjective perception, it is plausible that stress reaction, anxiety and depression may be of etiological significance for NUD, particularly if psychological factors are intense and prolonged or are combined with a low constitutional threshold for these factors. The high level of psychological morbidity in NUD patients (57% to 100%) demonstrate a diagnosable psychiatric disorder. Similarly, psychometric assessment indicate that the level of psychological symptoms in NUD patients significantly exceed to those in healthy community samples.

The present study aims to elucidate the role of psychological factors and life stresses in NUD. The methodology for assessing the life

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stress, anxiety and depression employed has been demonstrated to be a highly reliable method for Indian population and is scientifically acceptable.

### MATERIAL AND METHOD

Definition of terms - There are numerous definitions of dyspepsia (Colins-Jones et al., 1988). In this study, modification of definition of Krag (1982) and Crean et al. (1982) is used i.e. dyspepsia is defined as day pain, nausea or discomfort referable to upper alimentary tract that may be intermittent or continuous, has been present for more than one month and is not precipitated by exertion and is not relieved within five minutes by rest excluding patients with jaundice, dysphagia and bleeding.

Non-ulcer dyspepsia : NUD is defined as dyspepsia in which clinical evaluation fails to reveal an obvious structural cause for the symptoms and in which endoscopy has excluded acute or chronic peptic ulceration, oesophagitis and gastric cancer.

Selection of patients : The study group chosen from 241 consecutive patients who because of dyspepsia, had endoscopic examination at M.G.M. Medical College & M.Y Hospital, Indore during 1997 and revealed no evidence of acute or chronic peptic ulceration, oesophagitis or carcinoma.

Exclusion criteria consisted of : age below 18 years and above 60 years; dyspepsia persisting for less than 1 month before endoscopy; clinical evidence of irritable bowel syndrome; prior gastric surgery or proven peptic ulceration in the past; patients with history of upper G.I. bleeding; patients with overwhelming physical or mental disease (this included patients with carcinoma, pancreatitis, gall bladder disease, acute and chronic liver disease, bowel obstruction, chronic diarrhea and major psychosis); uncooperative patient, patients with history of tobacco chewing, cigarette smoking and alcohol abuse, patients on non-steroidal anti-inflammatory drug and steroids.

These exclusion criteria were selected because there was definite relation of dyspepsia with above factors. Maximum possible efforts

were done to exclude organic cause by extensive investigation, so that only psychological factors can be evaluated in NUD patients.

Out of 241, only 38 were included and remaining 203 were excluded, because of above exclusion criteria. Out of 38 patients, 14 were males and 24 females (mean age 31.84 years, range 18-50 years). Length of dyspepsia was more than 1 month. Majority of patients were having all three types of dyspepsia. Twenty five reported their chief symptoms as ulcer like dyspepsia. Twenty patients were having dysmotility like dyspepsia. Eighteen were having reflux like dyspepsia. The test for H. Pylori were not performed as it is normal inhabitant of more than 50% of Indian population and we excluded peptic ulcer by upper GI endoscopy. Relation of H. Pylori to NUD is still unproven (Mearin et al., 1995).

All were personally examined by the investigators. Upper GI endoscopy was done by gastroenterologist and psychiatric consultation was carried out by the psychiatrists. ICD-10 criteria was used to diagnose anxiety disorder or depression and then following psychometric test were completed : Gurmeet Singh's presumptive life events stress scale (Singh et al., 1984), Taylor's manifest anxiety scale (Taylor, 1953) and Hamilton's depression scale (Hamilton, 1960).

Controls : Controls were persons selected from the healthy attendants of the patients admitted in the medical wards of the same hospital. Subjects with the history of peptic ulcer or dyspepsia were excluded. All persons who had overwhelming mental or physical diseases were excluded. Controls were personally interviewed by the same investigators. The three scales were given in the same sequence as were given to the patients. Controls were matched with patients for age, sex and educational status.

### RESULTS

Sample characteristics : Of the 38 patients, about two third were female (63%; n=24). Mean age was 31.84 years (SD=9.53 years with a range of 18-50 years). Each patient was

sex and age matched with community control. The patient and control group did not differ significantly in relation to age, sex, marital status, occupational status, type of occupation or educational background. None of the controls had previously sought professional help for psychological problems.

**LIFE STRESS**

**Life Events :** There was no difference in the number of events experienced by patients and controls. Overall patients experienced eighty five events mean being 2.10(sd=1.39).

Of note is the fact that majority of patients experienced 2 to 3 events in a year. Four events were experienced by 5.26% and 3.22% of cases and controls respectively. Five events were experienced by 5.26% and 3.22% of cases and controls respectively. Only one patient experienced six events.

**Stress Score :** The mean stress score among cases and controls were 95.76 and 97.12 respectively. This difference was statistically insignificant.

**Categorized Events :** The total number of undesirable, desirable and ambiguous life events in cases were 26, 15, 10 and 12 (mean 1.84, 1.50 & 1.16) respectively. In controls, number of these events were 24, 15 and 9 (mean 1.50, 1.33 & 1.11) respectively. Mean number of undesirable events among cases and controls were 1.84 and 1.5 respectively. This difference was statistically not significant.

**Anxiety :** This analysis was undertaken to determine the extent to which Taylor's manifest anxiety scale score was related to NUD in cases and controls. The mean anxiety score were 20.27±4.8581 and 16.74±4.3679 among cases and controls respectively. This difference was significant (p < 0.01). In Taylor's Anxiety Scale 14.5 score is the cut off point for significant

anxiety. The number of NUD patients with significant anxiety was 35 (92.11%) and number of controls with significant anxiety was 21 (67.74%). This was statistically significant (p<0.01). About 73% of patients scored more than 18.5 compared to only 35% controls above this score.

**Depression :** Depression scores on Hamilton's rating scale indicated that overall, NUD patients and controls did not have significant depression scores. This score was 7.23±3.3750 in patients and 5.7±3.2795 in controls respectively. This was statistically not significant. None of the patients had moderate or severe depression.

**DISCUSSION**

Non ulcer dyspepsia is relatively a benign illness. Patients with NUD are healthy, eating regularly and running their symptoms since months or years without suffering from adverse health. Only problem is that, they are concerned with their illness. They need reassurance and explanation that this is not a serious illness. Nevertheless, the entity non ulcer dyspepsia is still lacking defined etiologies & management and is still best correlated in many studies with psychological factors.

In our study subjects were extensively investigated to define cases of NUD and objective standard psychometric test were used making psychological evaluation scientifically acceptable. We did not include patients over sixty years of age because in older dyspeptic patients organic causes are common. Patients with other systemic illness with dyspepsia were excluded because of the fact the these illnesses might predispose patient to anxiety and depression. So ultimately we obtained pure cases of non ulcer dyspepsia for psychological

**NUMBER OF CATEGORIZED EVENTS EXPERIENCED BY CASES AND CONTROLS**

Categorized events	Cases			Controls			t'
	N	Mean	S.D.	N	Mean	S.D.	
Undesirable	26	1.84	0.88	24	1.50	0.78	0.10 (N.S.)
Desirable	15	1.50	0.41	15	1.33	0.49	0.80 (N.S.)
Ambiguous	12	1.16	0.39	9	0.33	0.34	0.34 (N.S.)

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evaluation in our study.

Although our sample was small, majority of our patients were females similar to that of Bennett et al.(1991). Females are more prone for anxiety in our population. But unless large trials are conducted no definite comments can be made about this observation. In our observation NUD patients were younger and as age increased number of dyspepsia patients decreased. Emotional factors such as anxiety and depression are presumed to influence NUD because the digestive tract, with its autonomic nerve supply, is susceptible to stress induced alteration or secretion, motility and vascularity.

On the life events stress scale we found that average number of life events experienced by patients and controls was not much different. Similarly, total scores in cases and controls were equal on this scale. But occurrence of undesirable or negative events were more common in cases than in controls. There was no difference in occurrence of desirable events between two groups. Undesirable events are much stressful than desirable events which can be correlated with dyspeptic symptoms. Undesirable events in our patients in order of frequency were, family conflict, illness of family members, trouble at work with colleagues, superiors, subordinates, excessive alcohol or drug abuse by family member, marital conflict, conflict with in-laws other than over dowry, large loan, trouble with neighbour, lack of son, sexual problems, marital separation or divorce, detention in jail of self or close family member, financial loss and birth of daughter.

There are many studies supporting our observation. Tally et al.(1986) also found that mean number of major life events and associated life change and distress score were similar in cases and controls. This is consistent with our study. Bennett et al.(1991) found fewer life events than controls on the life events and difficulties schedule, which was consistent with our study.

In study of Hui et al.(1991) number of positive and negative life events were similar in

dyspeptic patients controls, this is against our observation of more negative events in cases. Hernandez et al.(1993) also found higher incidence of negative life events in their chronic non ulcer dyspepsia patients, that is consistent with our findings.

Observation of Gomez & Dally (1977) were almost similar to that of our study, they found equal number of life events and score in Paykel's schedule with excess of bereavements in cases.

Psychological stress of undesirable events might activate processes in the central nervous system and may evoke reactions; by suppressing vagal tone, fundic adaptation to ingested food may be impaired and gastric antrum abnormally filled. Latter may contribute to largely unrecognized cause of epigastric discomfort. Increased responsiveness or hypersensitivity to visceral (gastric distention) and psychological stimuli may constitute important factors contributing to perception or discomfort, possibly as abnormal perception of normal events.

On Taylor's manifest anxiety scale it was observed that majority of patients (93%) were having significant anxiety compared to that of controls which was statistically significant. Patients scored higher on anxiety rating scale than controls. These findings match with the observations of number of other studies. Tally et al.(1986) and Bennett et al. (1991) also proved that essential dyspepsia patients had significant anxiety levels than did community controls. Both used Spielberger State and Trait Anxiety Inventory.

Magni et al.(1987) also found that 87% of patients with dyspepsia had anxiety disorder. Diagnosis of anxiety was made through clinical interview in their study. Results were little bit similar with our observations. Langeluddecke et al.(1990) had similar observations on Spielberger State and Trait Anxiety Inventory. Kok et al.(1989) showed that generalized anxiety disorder was more in NUD patients than controls. Gomez and Dally (1977) showed raised score of anxiety on Hamilton's rating scale in their study

of patients with abdominal pain of psychogenic group. Anxiety can be said as one of the contributing factor for symptoms of non ulcer dyspepsia. The symptoms of NUD could be mediated by autonomic nervous system and leading to modification of secretion, motility and blood flow of digestive system secondarily. But it cannot be said at present that the anxiety is the sole causative factor of non ulcer dyspepsia.

Association of anxiety with non ulcer dyspepsia cannot be accepted as casual association unless other criteria defined by epidemiologist are fulfilled. These include a significant strength of association, consistent replication of results by other investigators, evidence that exposure to the psychological factors precedes the disorder, the presence of a biological gradient whereby the disorder is found to be more common with more marked psychological change, evidence that the association is plausible based on experimental investigations.

Present study shows that none of the patients had moderate or severe depression clinically on HRSD. But they scored higher as compared to controls on rating scale that was statistically insignificant. Their findings were similar with findings of Tally and Piper (1986) who also found higher but insignificant depression score in their patients on Beck Depression Inventory. Similarly, Langeluddecke et al (1990) also noticed raised but statistically insignificant depression in their patients on the Zung Depression Inventory. In contrast, Bennett et al (1991) and Kok (1989) found significant depression in their patients.

These findings suggest that psychological and pharmacological interventions for anxiety including stress management procedure may prove beneficial in the treatment of NUD.

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