

# Depression and Anxiety Levels in Armenian Crohn's Disease Patients

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**Abstract**—The Zung self-depression scale and Beck Anxiety Inventory were used to study the depression and anxiety levels of Armenian Crohn's disease patients, as well as to reveal the relation between emotional status and placebo effect of these patients.

Despite of registered high levels of depression and anxiety, the high placebo rate during investigations was described.

The importance of use of psychotherapies for optimal outcomes during treatments of Crohn's disease is obvious.

**Keywords**—Crohn's disease, emotional disorders, placebo, psychotherapy.

## I. INTRODUCTION

THE most common condition during gastroenterology practice is functional gastrointestinal disorders (FGID) [1], [5]. As Drossmann noted, psychosocial factors in FGID concern to their effects on gut physiology; their modulation of the symptom experience; their influence on illness performance; their impact on outcome and the selection of the therapeutic approach and these factors are very important [5]. It is necessary to have the exact representation about psychotherapeutic "targets", which can be various types of individual response to illness and social deadadaptation in connection with various forms of illness for the extensive use of psychotherapeutic methods to reach more results during the treatment of gastrointestinal diseases.

The symptoms of Crohn's disease (CD) have been described since 1612; however, the disease identified in 1932 by Dr. Burrill Crohn and his two colleagues, Dr. Leon Ginzburg and Dr. Gordon D. Oppenheimer finally. CD is a chronic non-specific inflammatory disease, which can affect different segments of gastrointestinal tract comparing with other colitis. The disease often develops in the teenage years, though individuals in their 60s and 70s are also at increased risk. The exact origin of CD is not known yet, but the genetic, autoimmune and environmental versions are more considerable [7]. None evidence of CD to be caused by psychological factors, even relationship between psychological variables and CD suggested since 1949 [2], [4]. It has been shown that severe chronic stress can lead to increased inflammation [9], and a high incidence of psychopathology has been reported in CD patients [6], [9], [10].

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Taking into account the above mentioned data, and despite of very rare frequency of CD patients in Armenia (3 cases for 1000 000 people) we aimed to evaluate emotional disorders of the CD patients as well as their depression and anxiety levels in order to investigate the psychiatric aspects of this disease. Also we aimed to study placebo effect for Armenian CD patients.

## II. METHODS

Twenty-six volunteer patients with CD were enrolled in our study from different hospitals of Armenia. None of the study participants had been treated with antibiotics, hormones, radiotherapy, or any other immunosuppressive or chemotherapeutic agents for at least 2-3 weeks before the investigation. Except testing patients had been interviewed of their disease.

The Zung self-depression scale [11] have tested to assess the level of depression for investigated objects, and the Beck Anxiety Inventory (BAI) was developed to address the need for an instrument that would reliably discriminate anxiety from depression while displaying convergent validity [3].

The questionnaires were used twice: before and after a month of placebo treatment. Placebo was administered twice daily, for 30 consecutive days during the investigations.

## III. RESULTS AND DISCUSSIONS

**Subjects.** Among twenty-six Armenian patients with CD the mean age of the patients was 47,6 years and we observed male predominance. Histogram of the age of patients showed the characteristic biphasic distribution with two peaks between 20 and 50 years and between 70 and 75 years. Coexisting disorders demonstrated in 10% patients. Only a patient had need of surgical treatment. 62% of patients were from Yerevan, others were from different regions of Armenia. The majority of CD cases are diagnosed in young people (20-50 years) with the predominance of male patients. Generally we noticed that the majority of CD patients were from Yerevan.

### *Depression and anxiety levels in Crohn's disease patients.*

The Zung self-depression scale is a short self-administered survey to quantify the depressed status of a patient. There are 20 items on the scale that rate the four common characteristics of depression - the pervasive effect, the physiological equivalents, other disturbances, and psychomotor activities. There are ten positively worded and ten negatively worded questions. Each question is scored on a scale of 1-4 (a little of the time, some of the time, good part of the time, most of the time). The scores range from 25-100.

The BAI offers advantages for clinical and research

purposes over existing self-report measures, which have not been shown to differentiate anxiety from depression adequately. The BAI scale consists of 21 items, each describing a common symptom of anxiety. The respondent is asked to rate how much he or she has been bothered by each symptom over the past week on a 4-point scale ranging from 0 to 3. The items are summed to obtain a total score that can range from 0 to 63.

The results of our investigations show that the studied CD patients were in different depression levels. We grouped the patients into 3 conventional groups: the patients with expression of low depression, patients with moderate depression, and patients with severe depression (Table I). Taking into account also the different anxiety levels of these patients, we grouped them into 9 subgroups finally (Table I).

TABLE I  
DEPRESSION AND ANXIETY LEVELS IN CROHN'S DISEASE PATIENTS

Quantity of Patients	Patients Groups								
	Zung score of low depression (less or equal 49)			Zung score of moderate depression (between 50– 69)			Zung score of severe depression (more or equal 70)		
	1	2	3	4	5	6	7	8	9
	Beck score ≤21	Beck score 22-35	Beck score ≥ 36	Beck score ≤ 21	Beck score 22-35	Beck score ≥ 36	Beck score ≤21	Beck score 22-35	Beck score ≥ 36
Before placebo	2	6	1	1	10	5	0	0	1
After placebo	4	8	0	5	6	3	0	0	0

As showed the results only a patient had severe depression (subgroup 9), and 46,2 % of all patients registered high anxiety (subgroups # 3, 6 and 9).

*Anxiety levels in Crohn's disease patients with low depression* (1, 2 & 3 subgroups). As the results have shown 34,6 % of patients gathered scores of low depression. However, they indicated that most of time they were more irritable than usual and the response to the statement "I feel useful and needed" was "little of time". The patients of this group had different anxiety levels, and the patients with moderate rate of anxiety composed 66,7% of them (subgroup 2) (Table I). Most patients of this group indicated on the statements "fear of dying", "fear of worst happening" as "bothering a lot".

*Anxiety levels in Crohn's disease patients with moderate depression.* The largest group of CD patients, composing about 61,5 % of all patients, had moderate level of depression (Table I). These patients also indicated on various fears.

*Anxiety levels in Crohn's disease patients with severe depression.* As we mentioned above, only a patient had a high score (75) of depression. He also gathered the highest anxiety scores. The patient differs from other 25 patients; he was diagnosed as having neurosis, besides CD.

All interviewed patients complained of the unpredictableness of the symptoms of the disease, which they considered as a depressing factor. Some young patients were eager to consider their illness as ulcerative colitis as they knew it may be cured but such auto-suggestion didn't help them to cope with the illness. During the investigation, we also noted differences between patients with favorable and unfavorable

life conditions. The patients with unfavorable life conditions demonstrated high levels of depression and anxiety, and it's a fact that patients with CD need specific healthcare.

**Placebo effect in Crohn's disease patients.** Psychological supports are one of the important categories of therapy for FGID, which, can be viewed as a complex interaction of enteric neurochemical abnormalities with psychosocial and environmental factors. If psychosocial factors play no direct role in the diagnosis of most gastrointestinal diseases, psychosocial and socioeconomic factors modify the illness experience and influence the level of pain reporting, and use of medications. To investigate any therapeutic efficacy in gastrointestinal diseases, it is necessary to control the therapeutic effect against the placebo response. We investigated the placebo effect for CD patients.

The results of our investigations have shown the changes in emotional status of CD patients after the discontinuation of placebo administration (Fig. 1).

All investigated patients were sure that the "medicament" helps to decrease pain. At the same time, the quantity of patients both with low and moderate expression of depression, who also gathered high scores during the investigations on anxiety level - Beck" score above 36 was decreased (Table I). Emotional changes were obvious also for the patients from the groups of low level of depression. Two of patients gathered moderate scores for depression and anxiety before the placebo admission, and low scores after it (Fig. 1), and were ready for the continuing of treatment in clinics, despite they rejected it before.

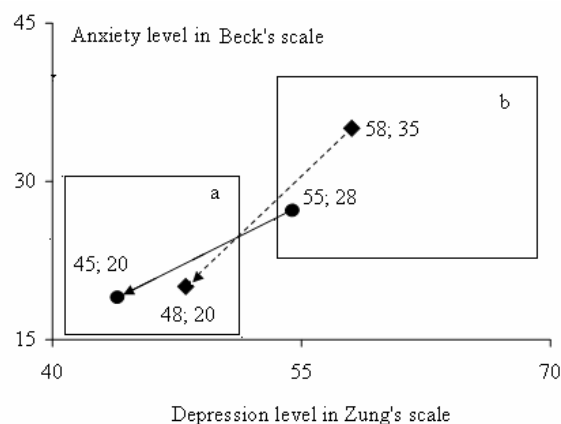


Fig. 1 Anxiety and depression levels a) before; and b) after placebo admission of two CD patients

#### IV. CONCLUSION

Depressive symptoms are an independent modifiable risk factor in many chronic diseases. Because depression and medical disease commonly coexist and exacerbate one another, and in some disorders (e.g. chronic pain) appear to share biologic pathways, patients with any chronic condition should be screened for depression as part of routine care and both conditions treated for optimal outcomes. The successful management of depression is an important factor of how

psychotherapies can affect the outcome of not only quality of life (QOL) for patients, but also medical illness. The results of our investigations show the significant levels for depression and anxiety in Armenian CD patients, despite the fact, that none of investigated patients was in high level of depression. It has been shown the effect of placebo in the treatment of CD and the need of psychotherapy for further research.

## REFERENCES

- [1] T. Alander, K. Svardsudd, S. Johansson, and L. Agreus, "Psychological illness is commonly associated with functional gastrointestinal disorders and is important to consider during patient consultation: a population-based study", *BMC Med.*, vol. 13, 2005, pp. 3-8.
- [2] Bardel, "Factors associated with adherence to drug therapy: a population-based study", *Eur J Clin Pharmacol.*, vol. 63, no. 3, 2007, pp. 307-314.
- [3] Beck and R. Steer, *Beck Anxiety Inventory Manual*. San Antonio, TX: The Psychological Corporation Harcourt Brace and Company, 1993.
- [4] Crohn, "Regional Ileitis", Ed. New York: Grune and Stratton, 1949, pp. 15-64.
- [5] Drossman, F. Creed, K. Olden, J. Svedlund, B. Toner, and W. Whitehead, "Psychosocial aspects of functional gastrointestinal disorders", *Gut*, vol. 45, 1999, pp. 1125-1130.
- [6] Gerbert, "Psychological aspects of Crohn's disease", *Journal of Behavioral Medicine*, vol. 3, 1980, pp. 41-58.
- [7] J. Kirsner, "Historical origins of current IBD concepts", *World J Gastroenterol.*, vol. 7, no.2, 2001, pp. 175-184.
- [8] L. Kurina, M. Goldacre, D. Yeates, and L. Gill, "Depression and anxiety in people with inflammatory bowel disease", *J Epidemiol Community Health*, vol. 55, 2001, pp. 716-720.
- [9] J. Mawdsley, and D. Rampton, "Psychological stress in IBD: new insights into pathogenic and therapeutic implications" *Gut.*, vol. 55, no. 7, 2006, pp. 1053-1054.
- [10] Sands, R. Kozarek, J. Spainhour, C. Barish, S. Becker, L. Goldberg, S. Katz, R. Goldblum, R. Harrigan, D. Hilton, and Hanauer, "Safety and tolerability of concurrent natalizumab treatment for patients with Crohn's disease not in remission while receiving infliximab", *Inflamm Bowel Dis.*, vol. 13, no. 1, 2007, pp. 2-11.
- [11] W. Zung, "A Self-rating Depression Scale Scale", *Archives of General Psychiatry*, vol. 12, 1965, pp. 63-70.