ORIGINAL RESEARCH PAPER

Psychiatry

Volume - 7 | Issue - 3 | March - 2017 | ISSN - 2249-555X | IF : 4.894 | IC Value : 79.96

Relation of depression with C reactive protein

KEYWORDS: Hamilton rating scale for depression, c reactive protein, depression

Dr Ramghulam Razdan
Professor & Head, department of psychiatry, MGM medical college, indore

Dr Pali Rastogi
Assistant professor, department of psychiatry, MGM medical college, indore

Dr Gaurav Chittora
PG student, department of psychiatry, MGM medical college, indore

Dr Prafulla Songara
Assistant professor, department of microbiology, MGM medical college, indore

ABSTRACT

Objective- To study the clinical profile of studied sample. To study the severity, duration, age of onset of depression and its relation to inflammatory mediator in depression.

Materials and Methods- 100 Newly diagnosed patients of Depression as per ICD 10 (International classification of diseases) DCR(Diagnostic criteria for research) were selected for study after applying strict inclusion and exclusion criteria. Severity of depression was measured by HRSD scale. Blood sample of participants was obtained and CRP was assessed.

Results- In our study 52% patients had age of onset of depression between 18-29 years, 22% patients had recurrent depression, 76% patients had duration of current episode of <1 year, and in 20% patients, family history of psychiatric illness was present. Mean of baseline CRP was higher in 41-50 years age group compared to younger age groups but it was not significant. Mean of baseline CRP was higher in females but it was not significant. Mean of baseline CRP was higher in recurrent depressive patients but it was not significant. Mean of Baseline CRP was higher in patients those who have duration of current episode >1 year but it was not significant. Mean of Baseline CRP was slightly higher in patients those who do not have family history of psychiatric illness and it was found not significant.

Conclusion- These findings suggest that CRP is correlated with depression

Introduction

Depression is one of the leading contributors to the global burden of disease. It can occur at any age from childhood to late life and is a tremendous cost to society as this disorder causes severe distress and disruption of life . Recent epidemiological surveys conducted in general populations have found that the lifetime prevalence of depression is in the range of 10% to 15%.

The World Health Organization (WHO) has ranked depression the 4th leading cause of disability worldwide1 and projects that by 2020, it will be the second leading cause.[2]

The classic theory about the biological etiology of depression is Monoamine hypothesis and it hypothesizes that the main symptoms of depression are due to a functional deficiency of the brain monoaminergic transmitter norepinephrine, serotonin, and dopamine.[3]

Currently available antidepressant medications largely target monoamine pathways, but treatment of depression is only effective in about a third to a half of patients.[4]

Identification of other pathophysiological pathways involved in depression is needed for the development of alternative treatment strategies. Increasing interest has been directed to immune dysregulation in depression. Depression has been shown to be associated with activation of the inflammatory response.

Recently, two meta-analyses have shown that inflammatory marker levels such as C-reactive protein (CRP), interleukin (IL)-6 and tumor necrosis factor alpha (TNF) are increased in depressed persons compared with nondepressed subjects.[5,6]

Present study was undertaken with the following objectives-

To study the severity, duration, age of onset of depression and its relation to inflammatory mediator in depression, alongwith clinical profile of studied sample

Materials and Methods-

This study was carried out at department of psychiatry at MGM medical college & associated M.Y. hospital, indore

100 Newly diagnosed patients of Depression as per ICD 10 (International classification of diseases) DCR(Diagnostic criteria for research) were selected for study after applying strict inclusion and exclusion criteria.

Inclusion criteria:

- Patient giving written informed consent
- Patients fulfilling criteria of depression according to ICD 10 DCR
- Patient were selected of age group of 18-50 years

Exclusion criteria:

- Patients not giving informed consent
- Patients who were on any other medication that affects CRP (anti-inflammatory drugs, oral contraceptive drugs, etc.).
- Patients having severe medical illnesses (Who are incapable for interview, need intensive care, in delirium),
- Patients with any infection, e.g., bacterial, viral, fungal
- Patients of known autoimmune disease, Diabetes mellitus, renal insufficiency, pregnancy and tuberculosis. and having other disorders that cause raised CRP
- Patients having the habits of alcohol intake or smoking.
- Patients with any inflammatory disease such as rheumatoid arthritis, juvenile chronic arthritis, ankylosing spondylitis, psoriatic arthritis etc
- Pregnant woman.
- Patient having Mental Retardation

Study duration wasfrom March 2015-feb 2016. The study protocol was approved by institutional scientific and ethical committee. Written informed consents were taken before the patients were included in study, A complete clinical assessment done to confirm diagnosis and clinical profile and data entered in semi-structured Performa. Apply HAM-D scales to quantify the depression severity.

Blood sample of participants was obtained and CRP was assessed.

Volume - 7 | Issue - 3 | March - 2017 | ISSN - 2249-555X | IF : 4.894 | IC Value : 79.96

Tools:

1. Semi structured data entry proforma: This proforma is being used for detailed evaluation of the patients. It includes socio-demographic details of the patient, age, gender, place of residence, marital status, religion, education, occupation, income, family type, depression characteristics included depressive symptoms severity as measured by the Hamilton Scale for Depression (HAM-D) score, and depressive symptoms duration.This proforma was completed on the basis of information given by the patient, his or her accompanying relative

2. Hamilton Rating Scale for Depression-17 (HRSD): It is a seventeen item questionnaire used to provide an indication of depression, and as a guide to evaluate recovery. Hamilton rating Scale for Depression (HAM-D) used in most of study so easy to compare the results with other studies. It generally takes 15-20 minutes to complete the interview and score the results. Eight items are scored on a 5-point scale, ranging from 0 = not present to 4 = severe. Nine are scored from 0-2.It has been useful for many years as a way of determining a patient's level of depression before, during, and after treatment

3. High sensitivity C-reactive protein: Blood samples were obtained from cases during diagnosis of depressive episode in outpatient department. Blood was centrifuged at 3000 × g for 10 minutes and stored at –20°C until analysis. Serum hs-CRP was measured by latex-enhanced immunoturbidimetry using monoclonal anti-CRP antibodies (Infinite Turbilatex CRP, Accurex biochemical private limited Mumbai IND 401506) (hs-CRP reference level, ≤ 6mg/L).

Data obtained in our study were analyzed using the Statistical Package for Social Sciences (SPSS for Windows) software, version 21.. The correlation between HAMD CRP was analysed by Pearson correlation. To compare the CRP or HAMD in between two groups, student t test was used. To compare the CRP or HAMD in more than two groups, ANOVA was applied. Average values were reported as mean ± standard deviation (SD).

Table:1 Clinical profile of studied sample–

Age of onset of depression (in years)	**No**	%
18-29	52	52
30-40	29	29
41-50	19	19
Recurrent depression	**No.**	%
Yes	22	22
No	78	78
Duration of current episode	**No.**	%
<1 year	76	76
≥1year	24	22
Family history of psychiatric illness	**Frequency**	**Percent**
Present	20	20
Absent	80	80

Table:2. Relation of depression with CRP

Age of onset of depression(in years)	**CRP at baseline (Mean)**	**SD**
18-29	2.01	2.06
30-40	2.75	2.59
41-50	2.63	2.11
Recurrent depression	**Mean of Baseline CRP**	**SD**
Yes	3.02	2.80
No	2.16	2.04
Duration of current episode (in years)	**Mean of Baseline CRP**	**SD**
<1 year	2.33	2.25
≥1year	2.38	2.26
Family history of psychiatric illness	**Mean of Baseline CRP**	**SD**
Yes	1.78	1.44
No	2.49	2.38

Disscussion

In our study 52% patients had age of onset of depression between 18-29 years, 22% patients had recurrent depression, 76% patients had duration of current episode of <1 year, and in 20% patients, family history of psychiatric illness was present.

Mean of baseline CRP was higher in 41-50 years age group compared to younger age groups but it was not significant. The higher CRP in 41-50 years age group may be due to start of some inflammatory process or vascular phenomenon, commonly associated with elder age group.[7]

Mean of baseline CRP was higher in females but it was not significant. According to A khera et al (2005) women have higher CRP levels than men.8 They have reported race and gender difference in CRP levels. Further research is needed to determine whether gender difference is present before or has occurred after development of depression.

Mean of Baseline CRP was compared according to age of onset of depression but it was not significant. However N Vogelzangs et al (2012) reported increase in CRP in late onset depression, their study included the subjects of 18-65 years of age as compared to 18-50 years subjects in our study.[9]

Mean of baseline CRP was higher in recurrent depressive patients but it was not significant. Possible explanation of this may be that recurrent episodes of depression may increase inflammation as per immune theory. Similar findings were reported in study by Radmila Topić et al (2013) who found significant elevation of CRP in patients with recurrent depressive disorders.[10]

Mean of Baseline CRP was higher in patients those who have duration of current episode >1 year but it was not significant. It might be possible that longer duration of depression may cause higher inflammation resulting in higher CRP.

Mean of Baseline CRP was slightly higher in patients those who do not have family history of psychiatric illness and it was found not significant.

Conclusion-

Its too early to derive to conclusion but definitely role of CRP cannot be under estimated

It would have been better if larger sample and control group was included in the study

References

1. Murray CJ, Lopez AD. Evidence-based health policy--lessons from the Global Burden of Disease Study. Science 1996;274:740–3.
2. M. S. Reddy. Depression: The Disorder and the Burden. Indian J Psychol Med 2010;32:1–2.
3. Schildkraut JJ. The catecholamine hypothesis of affective disorders: a review of supporting evidence. Am J Psychiatry 1965;122:509-522.
4. Pigott HE, Leventhal AM, Alter GS, Boren JJ. Efficacy and effectiveness of antidepressants: current status of research. Psychother Psychosom 2010;79:267–279.
5. Dowlati Y, Herrmann N, Swardfager W, Liu H, Sham L, Reim EK et al. A meta-analysis of cytokines in major depression. Biol Psychiatry 2010;67:446–457.
6. Howren MB, Lamkin DM, Suls J. Associations of depression with C-reactive protein, IL-1, and IL-6: a meta-analysis. Psychosom Med 2009;71:171–186.
7. Park S, Joo YH, McIntyre RS, Kim B. Metabolic syndrome and elevated C-reactive

Volume - 7 | Issue - 3 | March - 2017 | ISSN - 2249-555X | IF : 4.894 | IC Value : 79.96

protein levels in elderly patients with newly diagnosed depression. Psychosomatics 2014, 55(6):640-9.
8. Amit Khera. Race and Gender Differences in C-reactive Protein Levels. Journal of the American College of Cardiology 2005; 46: 464–9
9. N Vogelzangs et al. Association of depressive disorders, depression characteristics and antidepressant medication with inflammation. Transl Psychiatry 2012;2:1-9
10. Radmila Topić et al. Somatic comorbidity, metabolic syndrome, cardiovascular risk, and CRP in patients with recurrent depressive disorders. Croat Med J. 2013;54:453-9