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Exploratory Study of *Amavata Vyadhi* with Special Reference to C - reactive protein

Research Article

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Abstract

The objective of this study was to ascertain the relation between *Amavata vyadhi* and C - reactive protein. The study was conducted after ethics committee approval and written consent from patients. A total of 30 patients in different age groups were the subjects for this study. Assessment was done with special scoring pattern for signs and symptoms to obtain the correctness in the disease condition. Fasting blood sample was collected for routine lab investigations along with CRP. Correlation test and chi-square test for trend are applied for statistical analysis. Total score of *Amavata* and CRP concentration are closely and positively associated. It was concluded that there is increase in CRP concentration when signs and symptoms of *Amavata* increases.

Key words- *Amavata*, C reactive protein, Rhumatoid arthritis.

Introduction

Nowadays arthralgia is a common symptom found in number of people. It may be due to osteoarthritis, rheumatoid arthritis, gout, etc. Rheumatoid arthritis is an autoimmune disorder, where auto antibodies are produced against self antigen. Joint pain with multiple joint involvements with changes of inflammation is seen in this disease (1). Role of C-reactive protein is well established in inflammation.

Amavata is a disease of *rasavaha strotodushti*. Main causes of *amavata* are *aama* and vitiated *vata*. As explained by the Madhav nidan, nature of joint pain observed in amvata is *vrushchikdanshvat(2)*. Signs of joint inflammation also found in *amavata*.

C-reactive protein is an acute phase reactant, level of which increases due to inflammatory stimulus as explained earlier. Infection, inflammation and neoplasia all induce an acute phase response which is associated with changes in C.R.P(3).

Regarding the inflammatory nature of joints in amavata, it has been decided to work on EXPLORATORY STUDY OF *AMAVATA VYADHI* WITH SPECIAL REFERENCE TO C-REACTIVE PROTEIN to observe any relation between *amavata* and C-reactive protein.

Aim

To study the *amavata vyadhi* with special reference to C-reactive protein.

Objectives

1. To study the *amavata vyadhi*.

2. To study the relation between *amavata vyadhi* and C-reactive protein.

Materials and methodology

Materials:

1. Clinical material - 30 patients of *amavata* were studied for this project.
2. Material for lab investigations-
    1. C.R.P.
    2. Kit with reagents.
    3. Normal saline.
    4. Kits with reagents for other routine investigations.

Instruments- Test tubes, Micropipettes, Centrifuge machine, Cover slips, microscope, water bath, and analyzer.

Methodology

Detail research plan-

The study of this project was totally based on clinical observations and laboratory investigations of the patients.

Selection criteria for the patients-

I) Inclusion criteria-
1) Patients of *amavata* according to *ayurvedic* textual criteria.
2) Patients irrespective of age, sex, marital status, economic status and treatment were taken.

II) Exclusion criteria-
1) HIV positive patients
2) Tuberculosis
3) Cardiac diseases
4) Patient having recent history of major surgery
5) Malignancy

The study was performed as an open, randomized study on patients suffering from *amavata vyadhi.*

Plan of work-

1) Total number of patients-30
2) Prior consent was taken from each patient.
3) The detail case record format of the patients was performed.
4) Blood sample was collected in plain, oxalate and fluoride bulb of each and every patient of *amavata*.
5) In patients of *amavata*, all routine laboratory investigations such as haemogram with ESR, Blood sugar level, BUL, S. Creatinine level, urine routine and microscopic and HIV test along with RA test and CRP test were done in the laboratory(4).
6) Correlation between laboratory investigations and clinical findings was evaluated with the help of assessment criteria and recorded in observation table.

Criteria for assessment-

In the present study efforts has been made to follow the guidelines laid down by the traditional texts of *ayurveda* in the selection of patients. The signs and symptoms were assessed by adopting suitable scoring method.

The classical signs/symptoms i.e. *sandhishool* (joint pain), *sandhishotha* (joint swelling), *sandhigraha* (joint stiffness), *jwara* (fever), *trushna* (thirst), *aruchi* (tastelessness), *nidraviparyaya* (altered sleep), *alasya* (laziness) and *angamarda* (bodyache) were graded from 0 to 3 according to their severity.

Table no.1

No.	Sign/symptoms	Scores
1	***Sandhi shool* (joint Pain)**	
	a) No pain	**0**
	b) Occasional pain	**1**
	c) Pain during excess work	**2**
	d) Constant pain disturbing routine	**3**
2	***Sandhishotha* (joint Swelling)-** According to joints involvement	
	a) No joint involvement	**0**
	b) 0 - 5	**1**
	c) 6 - 10	**2**
	d) Above 11	**3**

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3	***Sandhigraha* (joint Stiffness)**	
	a) No stiffness or stiffness lasting for 5 mints.	**0**
	b) Stiffness lasting for 5 mints to 2 hrs.	**1**
	c) Stiffness lasting for 2 hrs. To 8 hrs.	**2**
	d) Stiffness lasting for more than 8 hrs.	**3**
4	***Jwara* (fever)**	
	a)Normal body as well as local temperature (98-99^0 F)	**0**
	b)Mild raised local temperature with normal body temperature (body temperature 99-100^0 F)	**1**
	c) Moderate raised body as well as local temperature (body temperature-100-103^0 F)	**2**
	d) Raised body as well as local temperature (body temperature-103^0 F or above)	**3**
5	***Trushna* (thirst)**	
	a)Normal daily water intake (1.5-2 lit/day)	**0**
	b)Increased thirst but frequencies of drinking can be controlled (2-2.5 lit/day)	**1**
	c)increased thirst with increased frequency (excessive amount -2.5-3 lit/day)	**2**
	d)very much increased thirst with very frequent intake	**3**
6	***Aruchi* (tastelessness)**	
	a)Absent	**0**
	b)Tasteless, can take diet	**1**
	c) Tasteless, can take little amount of diet	**2**
	d)Tasteless, can't take regular diet	**3**
7	***Nidra viparyaya* (altered sleep)**	
	a)satisfactory normal sleep (6-7 hrs)	**0**
	b) occasional unsatisfactory	**1**
	c)unsatisfactory sleep due to pain	**2**
	d)unsatisfactory sleep with or without pain	**3**
8	***Alasya* (laziness)**	
	a)No *Alasya*	**0**
	b) Doing satisfactory work or late initiation	**1**
	c)Doing unsatisfactory work or late initiation	**2**
	d) Do not want to do work or no initiation	**3**
9	***Angamarda* (Bodyache)**	
	a) Absence of bodyache	**0**
	b) Bodyache for sometimes	**1**
	c) Generalised bodyache-intermittent	**2**
	d)continuous bodyache	**3**

With these criteria, the maximum score is 27 and minimum score is 0. The gradation of *Amavata* is denoted by figures 00 to 27.

From above assessment criteria, *Amavata* can be graded as follows-

Table no. 2

Sr. No.	Grade	Total score
1	Mild	00-09
2	Moderate	10-18
3	Severe	19-27

Observation

Majority of the patients were from 31-60 yrs of age (73.34%), females (76.67%), Hindus (86.66%), doing household work (50%), having mixed diet (73.33%), married (100%) and educated (70%).

In lab investigations 46.67% of the female patients and 13.33% of male patients had Hb% between 9-11 gm%. 63.34% females and 20% males had RBC count below 4.0 million/mm^3. 53.33% patients had ESR above 50mm. In 66.66% patients BSL-F was between 70-100 mg/dl. BUL and serum creatinine was within normal limits in 96.67%. All patients had HIV test negative. RA test was positive in 66.67% of patients. CRP test was positive in 90% of patients out of which 40% patients had CRP concentration 12 mg/L. 23.33% patients had 6 mg/L, 16.67% patients had 24 mg/L and 10% patients had 48 mg/L CRP concentration. Majority of patients i.e. 60% were having moderate type of *Amavata* having score in between 10-18.

Image no. 1

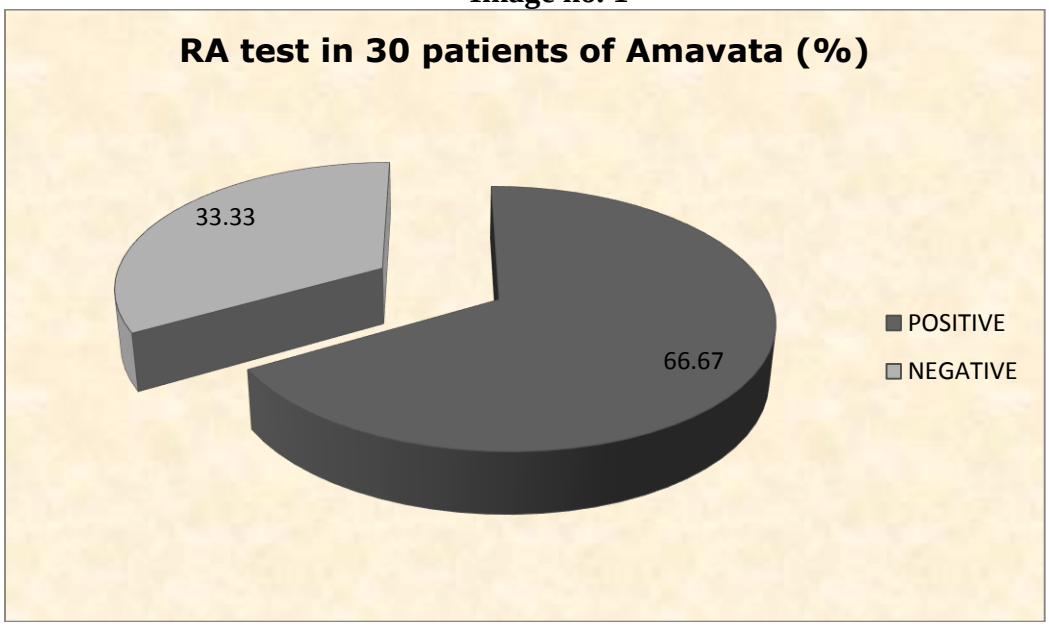
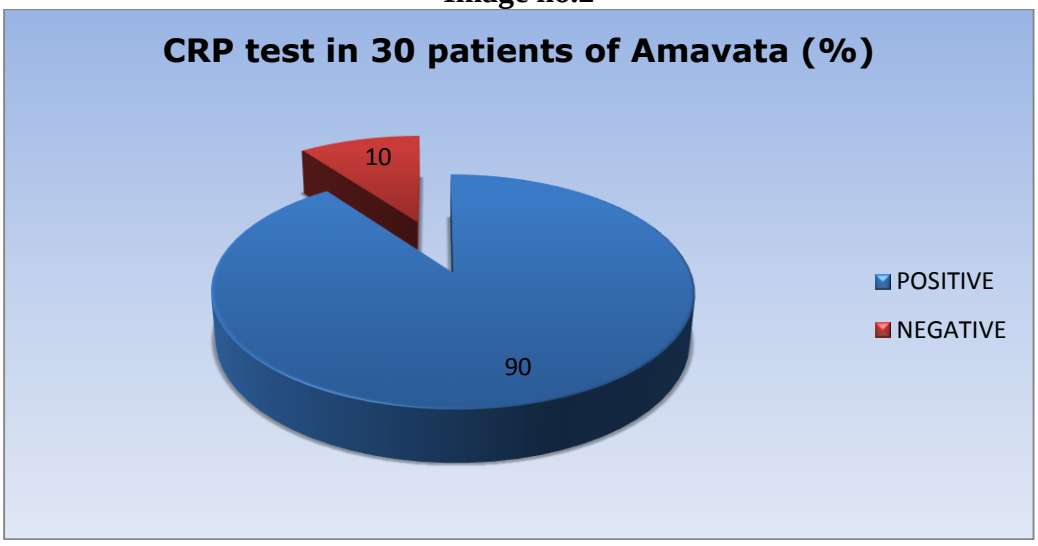


Image no.2



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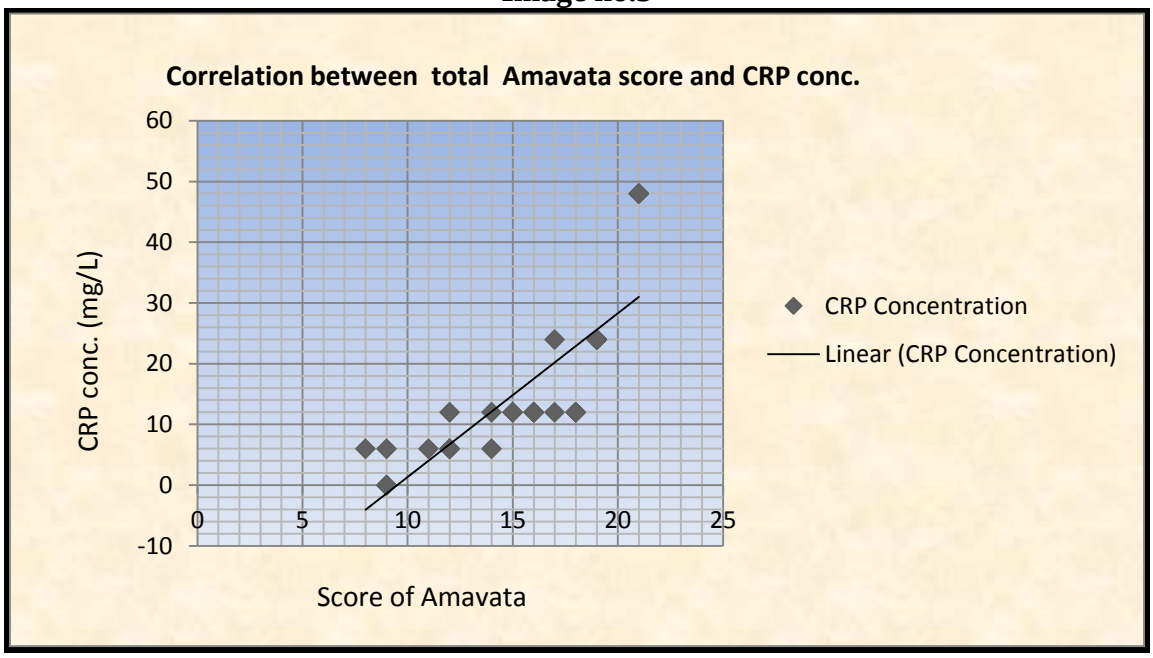
Statistical Analysis:

Correlation test and chi-square test for trend are applied for statistical analysis.

Linear correlation-

The calculated correlation coefficient is more than +0.5 and hence there is positive correlation between total *Amavata* score and CRP concentration i.e. if total *Amavata* score increases, there is corresponding increase in CRP concentration.

Image no.3



Chi-squared test for trend-

Since the calculated value of Chi-square is greater than the table value, the test is significant statistically (for P<0.002). There is significant linear trend among the ordered categories and hence the Null hypothesis is rejected and alternate hypothesis is accepted. So, there is association between type of *Amavata* and CRP test.

Discussion

In the present study, 30 patients of *Amavata* were registered. The disease was diagnosed on the basis of signs and symptoms as described in *ayurvedic* texts. Score for *Amavata* is calculated from grading of signs and symptoms of *Amavata* and all routine investigations along with CRP were done to observe relation between *Amavata* and lab investigations.

Majority of the patients were from *madhyam age* group, females, Hindus, doing household work, having mixed diet, married and educated.

76.66% Patients of *Amavata* are having Hb% below 11 gm%. This suggests the *asarata* of *rakta dhatu* as a consequence of *rasa dhatu dushti* in *Amavata vyadhi*.

ESR by Wintrobe's method in 96.66% *Amavata* patients is found to be increased above 20 mm at end of 1 hour. As ESR is also one of the inflammatory markers, a level of ESR gets increased.

RA test is positive in 66.67% of the *Amavata* patients. Hence symptoms of *Amavata* and rheumatoid arthritis can be co-related and found similar to each other.

CRP test is positive in 90% of the *Amavata* patients. Levels of CRP increases as the sign and symptoms of *Amavata* get increased. As CRP increases in

inflammatory conditions, this increased levels suggests the inflammatory nature of the disease i.e. *Amavata.*

WBC count, BSL-F, BUL, Serum creatinine and Urine R & M- These investigations have no any significant change from normal. These investigations are within normal limits in *Amavata* patients.

Conclusion

After analyzing all the data and observations, following conclusion has drawn-

1. *Amavata* is common in 31 to 60 yrs of age group i.e. *madhyamavastha* according to age distribution and especially in females.
2. 76.66% Patients of *Amavata* are having Hb% below 11 gm%.
3. ESR by Wintrobe's method in 96.66% *Amavata* patients is found to be increased above 20 mm at end of 1 hour.
4. RA test is positive in 66.67% of the *Amavata* patients.
5. CRP test is positive in 90% of the *Amavata* patients.
6. CRP concentration when compared with *Amavata* score shows that there is increase in CRP concentration when severity of signs and symptoms of *Amavata* get increased.

The understanding of the pathophysiology of *Amavata* and precise knowledge of the possible triggers of the inflammation may open novel therapeutic approaches. Hence the present study suggests the importance of measuring the biomarkers of inflammation assessed in the study not only to determine the severity of inflammation but also to evolve targeted treatment strategies for better management of the condition.

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