AN OBSERVATIONAL STUDY ON AMAVATA W.S.R. TO CHANGES IN INFLAMMATORY MARKERS

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ABSTRACT

The concept of *ama* is unique in Ayurveda and is considered as the root cause of various disorders. *Amavata* is characterised by *ruja* and *shopha*, predominantly in *sandhi*. Thus this disease shows the classical signs of inflammation with both systemic and articular manifestations. Inflammation is associated with systemic reactions that are collectively called acute phase response, which is mediated by cytokines like TNF alpha, IL-1 and IL-6. In response to this reaction liver synthesizes acute phase proteins like C - reactive protein (CRP) and Fibrinogen irritates rouleaux formation leading to a rapid Erythrocyte Sedimentation Rate (ESR). In this present study an attempt is made to assess the fluctuation of inflammatory markers during various *avasthabhedas* of the disease.

Objectives: The present study is to assess the probable changes in inflammatory markers like ESR, CRP and TNF- alpha in *Amavata.*

Methods: This is a cross-sectional observational study with 30 patients diagnosed with *Amavata* based on Ayurvedic classics according were selected for the study. A special proforma was prepared with all points of history taking, physical signs and symptoms as mentioned in our classics including laboratory investigations. Analysis of recorded data was done by descriptive statistics.

Results: In this study majority of patients with severe *pratyatma lakshanas* of *Amavata* were having raised ESR, CRP and TNF alpha values.

Conclusion: Based on the observational study carried out in 30 patients with *Amavata*, it can be concluded that with increase in the severity of *Amavata lakshanas* and according to various *avasthabhedas* of *Amavata* there was an increase in the level of inflammatory markers.

Keywords: *Amavata*, ESR, TNF- alpha, IL-1, IL-6, CRP, *avasthabhedas*

INTRODUCTION

Agni is one of the critical factor that maintain health and internal homeostasis. *Ama* is considered to be a toxic substance formed in body as a result to impaired *agni*, and it is root cause for various diseases. *Amavata* is one among such disease where *ama* and *vata* are two pathological entities involved in the disease. *Amavata* was explained first by Acharya Madhava, *viruddha ahara* and *viruddha chesta* are the main important causative factors responsible for occurrence of disease[1]. In *Amavata ama* is carried by *prakupita vata dosha* settles in *sleshma sthana* leading to *ruja* and *shopha*, predominantly in *sandhi*[2]. The *ama* acts as an external agent and antibodies are formed against this and they interact with each other forms immune complexes and gets settles down in joints. Thus this disease is characterised by classical signs of inflammation with both systemic and articular manifestations. The classical features of *Amavata* like *sandhi shoola, sandhi graha* and *sandhi shopha* are seen in many inflammatory joint diseases[3]. Inflammatory joint diseases like Rheumatoid arthritis, Systemic lupus erythematosus, Psoriatic Arthritis, Ankylosing Spondylitis and Gouty arthritis exhibits with inflammation of the joints, effusion of fluid into joint. The opinion about disease activity and outcome can be made by taking a complete history and physical examination as well as a laboratory variables (acute phase proteins), and radiological investigations.

Amavata can be explained under the headings *Samuthana vishesha* (specific etiological factor), *Vikaraprakriti* (signs and symptoms) and *Adhishtanatarani* (site of manifestation) which are the triads of diagnosis of disease mentioned by Acharya Charaka[4].

Samuthana vishesha

Samuttanavishesha is one among the triads of diagnosis. It is the causative factors responsible for *vyadhi utpathi*. In *Amavata* the presence of *asatmyaja bhava* in the body is considered to be the *utpadaka hetu* and this may be either due to *bheeja swabhava* or *apathyanimmitaja.* In the disease *anonya sammurchita dushta doshas* are involved. *Asatmya doshas, vata* and *kapha* are *abhyantara nidanas* and among *dooshyas rasa, asthi* and *majja* are *abhyantara nidanas.*

Vikaraprakriti

Vikaraprakriti is the clinical diagnosis of a disease. In a disease signs and symptoms provide precise information regarding *doshas* and *dooshyas.* It helps in understanding the site where the pathological process is going on. On detailed analysis of symptomatology of *Amavata,* it clinically resembles with inflammatory joint diseases.The *pratyatma lakshanas* of *Amavata* like *sandhi shoola, sandhi shopha* and *sandhi graha* were present in all patients but there was variation in the severity of these clinical features.

Adhishtanatarani

Adhishtana of *vikara* is the pathological site which includes *anga, angavayava* and *srotas*. In *Amavata Vata pradhana Tridoshas, gambeera dhatus* like *asthi* and *majja* are involved and the disease is getting manifested in *sandhi* which is *madhyama rogamarga* and all these makes the disease *krichra sadhya vyadhi.* It can be considered as a chronic inflammatory autoimmune disease caused by type III Hypersensitivity reaction where body's own tissues are mistakenly attacked by immune system.

Inflammation systemic or localized is associated with systemic reactions that are collectively called acute phase response, which is mediated by cytokines like TNF alpha, IL-1 and IL-6. In response to the inflammatory cytokines, the liver synthesizes acute phase proteins like C- Reactive protein (CRP) and Fibrinogen which irritates rouleaux formation leading to a rapid Erythrocyte Sedimentation Rate (ESR) [5].

Diagnosis of disease is mostly based on clinical symptoms combined with laboratory and radiological investigations. The diagnosis of *Amavata* was done based on the clinical features exhibited by patients and

this will vary according to the strength of individuals. So by seeing clinical features alone it is difficult to diagnose a disease. Nowadays laboratory investigations are carried out which will be useful for understanding the severity and progression of disease.

AIMS AND OBJECTIVES

The present study is to assess the probable changes in inflammatory markers like ESR, CRP and TNF- alpha in *Amavata.*

MATERIALS AND METHODS

Source of data

30 patients diagnosed with *Amavata* attending OPD and IPD of Sri Dharmasthala Manjunatheswara Ayurveda Hospital, Udupi were selected for the study.

Methods of collection of data

Study design: This is a cross-sectional observational study with 30 patients diagnosed with *Amavata* based on Ayurvedic classics according were selected for the study. A special proforma was prepared with all points of history taking, physical signs and symptoms as mentioned in our classics including laboratory investigations.

Inclusion criteria

- Patients exhibiting clinical features of *Amavata.*
- Patients of either sex between age group of 20-60 yr.

Exclusion criteria

- Patients having features of *Amavata* with secondary infections, systemic illness and malignancy
- Pregnant women and Lactating mothers.

Assesment criteria

Subjective parameters:

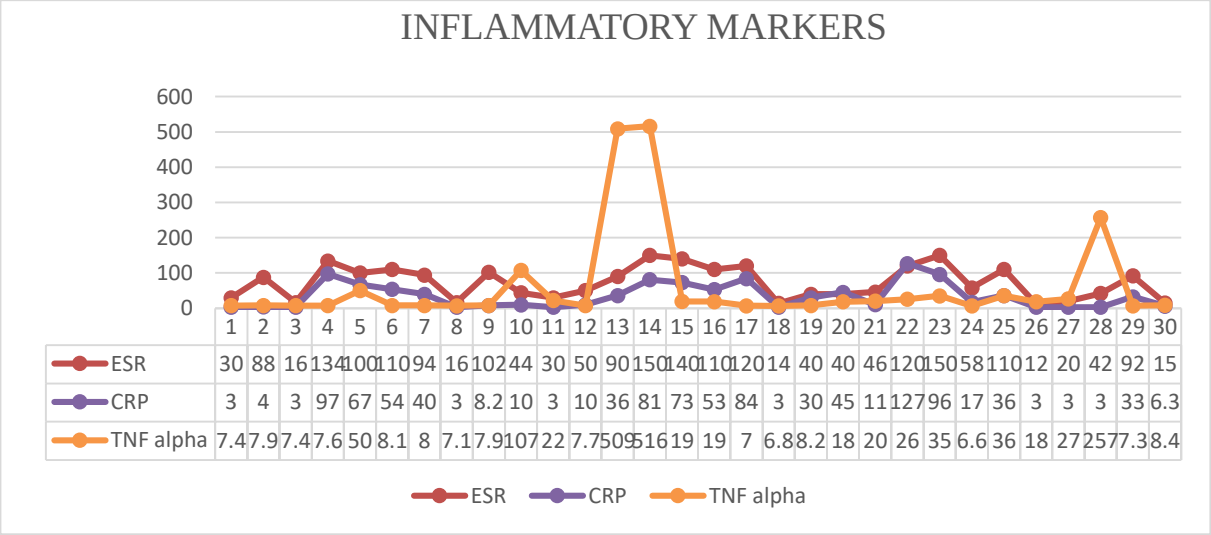
Samanya Lakshanas of *Amavata* like- *Angamardha, Aruchi, Trishna, Alasya, Gourav, Jwara, Apaka.*

Objective parameters:

Lakshanas of *Amavata* like *Sandhi shopha*

Laboratory investigations like ESR, CRP and TNF-alpha.

RESULTS



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
ESR	30	88	16	134	100	110	94	16	102	44	30	50	90	150	140	110	120	14	40	40	46	120	150	58	110	12	20	42	92	15
CRP	3	4	3	97	67	54	40	3	8.2	10	3	10	36	81	73	53	84	3	30	45	11	127	96	17	36	3	3	3	33	6.3
TNF alpha	7.4	7.9	7.4	7.6	50	8.1	8	7.1	7.9	107	22	7.7	509	516	19	19	7	6.8	8.2	18	20	26	35	6.6	36	18	27	257	7.3	8.4

Fig No:1 Distribution of inflammatory markers among patients

DISCUSSION

In this particular study 56.7% were having severe *sandhi shoola* and among them 52.94% were having ESR value greater than 100mm/1st hr,16.7% of the patients in this study were having severe *sandhi shopha* and among them 80% patients were having ESR more than 100 mm/1st. In this study with increase in the severity of *pratyatma lakshanas* of *Amavata*, ESR value was found to be raised. ESR measures the degree of inflammation in the body and it is not a diagnostic tool.

In this study 56.7% of patients were showing severe *sandhi shoola*, and among them CRP value was raised among 85.71% of patients. 16.7% of patients were having severe *sandhi shopha* among them all are having CRP value was above 30mg/dl. In this study with increase in the severity of *pratyatma lakshanas* of *Amavata*, the CRP value was found to be more than 30mg/dl.

In the present study among 30 patients 73.3% patients were having TNF alpha (>8.1pg/ml) in detectable level. In patients 56.7% with severe *sandhi shoola* TNF alpha was more than 8.1pg/ml among 70.58% patients, in 40% with moderate *sandhi shoola* 41.66% patients TNF alpha was in detectable range.Severe *Sandhi shopha* was noticed among 16.7% patients and among them 10% were having TNF alpha >8.1pg/ml, 50% patients were having moderate sandhi shopha and among them 46.6% were having TNF alpha >8.1pg/ml and mild *sandhi shopha* TNF alpha was not detectable. Majority of patients with severe *pratyatma lakshanas* were having TNF alpha value in detectable range.

CONCLUSION

Amavata is a unique disease which is characterised by involvement of two pathological entities *ama* and *vata*, which are having mutually opposite properties. *Viruddha ahara* and *viruddha cheshta* are important causative factors mentioned for the disease. *Viruddha* is capable of vitiating *Tridoshas* and *dhatus* it is also *srodhorodhaka* and *maha abhishyandhi*[5]. The *lakshanas* and *avastha bhedas* of *Amavata* shows similarity with clinical features of inflammatory joint diseases like RA, SLE. Ps A, Gouty arthritis and AS. In most of the rheumatological disorders disease activity and outcome cannot be measured by a single variable. The opinion about disease activity and outcome can be made by taking a complete history and physical examination as well as a laboratory variables (acute phase proteins), and radiological investigations. The erythrocyte sedimentation rate (ESR) and the C-reactive protein (CRP) level are indirect and direct measures of the acute-phase response, respectively, that can be used to assess a patient's general level of inflammation.

In this particular study majority of patients with severe *pratyatma lakshanas* of *Amavata* were having raised ESR, CRP and TNF-alpha values. Hence based on the observational study carried out in 30 patients with

Amavata, it can be concluded that with increase in the severity of *Amavata lakshanas* and according to various *avasthabhedas* of *Amavata* there was an increase in the level of inflammatory markers.

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