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EFFICACY OF MASHABALAKWATHA IN AVABAHUKA (FROZEN SHOULDER) - A CLINICAL STUDY

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ABSTRACT

Avabahuka is the disease which affect shoulder joint, now a days it can be correlated with frozen shoulder which is a *Vata Pradhan Vyadhi*. It affects mainly shoulder joint. The pain hamper in daily routine work, such as dressing, preparing food, carrying bags and working, though not serious disease but life become miserable. Aim and objective of the study is to conduct a clinical study to evaluate the efficacy of trial drug "*MashabalaKwatha* in *Avabahuka* with special reference to frozen shoulder.In the present study 32 patients suffering from *Avabahuka*were randomly selected from IPD and OPD of National institute of *Ayurveda*, Jaipur. 30 patients had completed the study and 2 patients were drop out *Masabala* in *Kwatha* form in the dosage of 92 ml twice daily after breakfast and at bedtime for 1 month. Subjects with chronicity of disease pertaining from 3 months to 3 years of either sex between the age group of 20 - 70 years was taken. Result of the study were as follows 66.66% was totally improved, 20% was marked improved and 13.33% was moderately improved.

Keywords: *Avabahuka, MashabalaKwatha, Vata Pradhan Vyadhi*

INTRODUCTION

Ayurveda emphasizes more upon normal maintenance of health, prevention and curing of diseases through systematic follow up of regimens. *Ayurveda* has given due importance to *Vatavyadhi* since the era of *Veda*. Almost all *Acharya* describe the *Vatavyadhi*. But the diseases of *Vatavyadhi* is more in number than *Pitta* and *Kapha* and separate chapters of it is described. There are 80 types of *Vatavyadhi*[1], *Avabahuka* is one of them. It is the disease which affect shoulder joint, now a days it is frozen shoulder which is *Vata Pradhan Vyadhi*. It is the major problem affecting the *AmsaSandhi*,[2]and said that the pain hamper in daily routine work, such as dressing, preparing food, carrying bags and working, though not serious disease but life become miserable. Symptoms are variable depending on the cause. Pain is the usual presenting feature and may be accompanied by muscle spasm and limitation of movement. The onset can be acute.

When the condition is sub-acute or chronic, pain and stiffness are most marked after a period of inactivity and may be eased by moderate exercise. Tender areas may be present. Pain often worsens at night when lying on the affected side. Muscle wastage may be present. The present study was carried out to evaluate the effectiveness of *Masabala Kwath* in the management of *Avabahuka* (frozen shoulder) because *Masa* and *Bala* are roborant and anything which is roborant is useful in vatavyadhi[3]

Aim and Objective: To conduct a clinical study to evaluate the efficacy of trial drug "*Mashabala Kwatha* in *Avabahuka* with special reference to frozen shoulder.

Materials and Methods

Source of the Data: 32 patients suffering from *Avabahuka* were randomly selected from IPD and OPD of National institute of *Ayurveda*, Jaipur.

Sampling method: Total no. of 32 randomly selected cases, excluding dropouts were taken.

Inclusion Criteria

1. Subjects presenting with classical clinical features of *Avabahuka* vis a vis Frozen Shoulder.
2. Subjects with chronicity of disease pertaining from 3 months to 3years.
3. Subjects of either sex between the age group of 20 - 70 years.
4. Subjects fit for adopted treatments.

Exclusion Criteria

1. Auto immune disorders like SLE, RA etc.
2. Post Traumatic injuries.
3. Dislocation of Shoulder joint.
4. Uncontrolled metabolic disorders like Diabetes mellitus.
5. Age group below 20 and 70 years

Plan of Study: Preparation of the Trial Drugs and Dose

Bala Yavakut and *Maṣa* was made in the Pharmacy of NIA, Jaipur. Which Batch No. was Ao194.

This *churna* was administered to patients in *Kwatha* form in the dosage of 92 ml twice daily after breakfast and at bedtime.

Preparation of medicine

a) Preparation *of Masabala Kwath:* 4 *Tola Yavakuta* drug is taken and 16 times water is added then boiled in mild fire, then it is boiled upto that much where 1/8 part is remaining**.**

b) Ingredients of *Masabala Kwath and its properties*

Table No.1 and Table No.2.

Evaluation of parameters for Assessment of therapeutic efficacy

Subjective parameters were taken into consideration for assessment of therapeutic efficacy.

Subjective Assessment

The subjective sign and symptom of *Avabahuka* scored according to the severity and considered as the assessment criteria for the study.

The functional assessment and pain of the shoulder joint is done according to the parameters of Oxford shoulder scale (OSS), where the points are converted into grades for the convenience of the study. Finally lower the score better the shoulder functionally.

Range of movement by Goniometer.

Here all the sign and symptoms were giving scoring. Again, the daily activities were also giving scoring. In case of every sign and symptom total 100 % score was given individually, and result found was made on average basis.

Cardinal manifestation of *Avabahuka* table no.3

Associated symptom table no.4

Oxford Shoulder Scale table no.5

The result will be remarked as:

100% relief of Symptoms	Complete improvement
75% relief of Symptoms	Marked improvement
50% relief of Symptoms	Moderate relief
Above 25% relief of symptoms	Mild relief
25% relief of symptoms	No relief

Statistical analysis: All the calculations were calculated through 'Graph Pad In stat'
Software.
Wilcoxon signed rank test- Nonparametric test.
Unpaired 't' test- Applied forparametric observation.

Result: Sample size: In this study, total 32 patients were registered and randomly taken in thegroups by chit method.32 patients were registered, 30 patients completed thetrial while 02 patients Left Against Medical Advice (LAMA).Hence, the total number of patients was 32 for the present study, so results of 30 patients are given.

Effect of (*MasabalaKwatha*): Subjective parameter i.e. *Sula, Aṭopa, samkoca, Amsasocha*, OSS variables were assessed by paired Wilcoxon matched-pairs signed-ranks test for therapeutic effect and for the assessment of therapeutic effect of parametric variable i.e. flexion, extension, abduction, external rotation paired "t" test was used.

Table 6: Result of effect of trial drug *Masabala Kwatha* in Subjective nonparametric variable. *Pain* was 41.77%% during follow up in15 days, after completion of therapy it became 93.67% which was extremely significant (p<0.0001) in *Aṭopa* was 20% during follow up in 15 days, after completion of therapy it became 80.35% which was not significant (p=0.125), in Samkoca was 61.76% during follow up in15 days, after completion of therapy it became 91.82% which was extremely significant (p<0.0001).

Table no.7 Effect of (*MasabalaKwatha*) parametric by goniometer.

Effect of trial drug in flexion was 39.74% during follow up in15 days, after completion of therapy it became 92.31% which was extremely significant (p<0.0001) ,in extension was 3.33% during follow up in15 days, after completion of therapy it became 83.33% which was extremely significant (p<0.0001), in abduction was 43.04% during follow up in15 days, after completion of therapy it became 93.67% which was extremely significant (p<0.0001), in external rotation was 18.83% during follow up in15 days, after completion of therapy it became 93.94% which was highly significant (p<0.0001).

Table 8: Effect of trial drug *Masabala Kwatha* in Oxford Shoulder Scale. worse pain from shoulder was 40.51% during follow up in15 days, after completion of therapy it became 92.41% which was extremely significant (p<0.0001), in trouble in dressing because of shoulder was 40 % during follow up in15 days, after completion of therapy it became 93.75 % which was extremely significant (p<0.0001), in trouble in getting in and out of a car or using public transport because of shoulder was 38.89 % during follow up in15 days, after completion of therapy it became 88.89 % which was extremely significant (p<0.0001), in trouble in using a knife and fork – at the same time was 40.38 % during follow up in15 days, after completion of therapy it became 90.38 % which was extremely significant (p<0.0001), in trouble in doing the household shopping was 42.86 % during follow up in15 days,after completion of therapy it became 88.89 % which was extremely significant (p<0.0001), in carrying a tray containing plate of food across a room was 50 % during follow up in15 days, after completion of therapy it became 88.89 % which was extremely significant (p<0.0001), in doing brush/comb hair with the affected arm was 41.07% during follow-up in 15 days, after completion of therapy it became 91.07 % which was extremely significant (p<0.0001), in the pain description usually had from shoulder was 37.80 % during follow-up in15 days, after completion of therapy it became 90.24 % which was extremely significant (p<0.0001), in hanging cloths up in a wardrobe- using the affected arm was39.74% during follow up in15 days, after completion of therapy it became 92.36 %which was extremely significant (p<0.0001), in wash and dry patient itself under both arm: was 42.17 % during follow-up in15 days, after completion of therapy it became 93.98 % which was extremely significant (p<0.0001),in pain from shoulder interfered with usual work was 40.76 % during follow-up in15 days, after completion of therapy it became 93.93 % which was extremely significant (p<0.0001),in troubled by pain from shoulder in bed at night was 42.68 % during follow-up in15 days, after completion of therapy it became 92.68 % which was extremely significant (p<0.0001).66.66% was totally improved,

20% was marked improved and 13.33% was moderate improved.

DISCUSSION

The study was a therapeutical study. *Avabahuka* is a *Vatavyadhi*. *Bala* and *Maṣa* directly not mentioned in texts for *Avabahuka*. Itis used as *Masabala kwatha* mentioned in *Bheṣajyaratnavali* where other ingredients also present. Again, in *Carak Samhita* it is mentioned that any roborant is useful in *Vatavyadhi*. But individually *Bala* and *Maṣa* are *Brmhaniya*, so these two drugs were selected for the study. In the study both drugs were taken *Bala* (50%) and *Masa* (50%).

Mode of action of *Masabala*:

Bala (*Sidacordifolia*): *Bala* is *vatasamaka* by its *Madhur Rasa*(sweet taste) and *Madhur Vipak*, in *Avabahuka Ruksha* (dry) *Guna* of *Vata* is increases so by its *Snigdha* (unctuous) quality decrease *Rukshata* of *Vata*, it is *Brimhaniya* and *balya* so give nutrition and strength to muscle and nerve. *Bala* are *Vedanasthapaka* so alleviates pain, which is the main cardinal feature of *Avabahuka*. Kanth and Diwan also demonstrated that S. cordifolia can increase pain tolerance. *Maṣa* (*Vignamungo):* According to *Ayurveda* this is heavy to digest and increases the moistness of body tissue. It is sweet to taste and hot in potency. All these properties help to normalize or calm vitiated *Vata*. Consumption of this increases *Kapha* and *Pitta*. Imbalanced *Vatadoṣa* causes many diseases and leads many locomotor disorders. Hence *Acharya* recommended use of *Maṣa* in many health conditions. According to principles of *Ayurveda* vitiation of *Vata* initiates the sensation of pain. *Maṣa* or urad dal normalize *Vata* and hence act as analgesic.

CONCLUSION

MasaBala kwatha is cost effective, easily available drug. Drugs which are *Brimhaniya* are useful here, which subside *Vata* and give nutrition to *Kapha. Maṣa* and *Bala* has the property as *Brimhaniya* and which also target *Shool*, *Bahupraspandanhara*, *Samkocha* because *Vata* produced these symptoms. It can be concluded that *Masabala kwath* which is efficiently decreases the clinical Sign and symptoms of *Avabahuka* (frozen shoulder), can be recommended in the management of *Avabahuka* (frozen shoulder).

Table 1: Botanical Name

(Family)	Sanskrit Name	Part Used
Sidacordifolia	*Bala*	*Panchang* (whole plant)
Vignomunga	*Masa*	*Beeja (seed)*

Table 2: Properties of *Masabala kwath*

Ingredients	*Rasa*	*Guna*	*Virya*	*Vipak*	*Dosha karma*	**Other properties**
Bala	*Madhur*	*Laghu, snigdha, picchila*	*Sita*	*Madhur*	*Vatapittasamak*	*Bṛimhaṇa*[4], *Vatahara*[5], *Balya*[6] *Vedanasthapana*[7], *Sothahara, Ojovardhaka*
Masa	*Madhura*[8]	*Guru, Snigdha*	*Ushna*[9]	*Madhur*	*Vatasamaka Kapha and Pittavardhaka*[10]	*Brimhaṇa*[11], *Snigdha, Vataghna,*[12]*Balya, Vedanasthapana, Nadibalya, Sulaprashamana, Artavajanana, Jeevaneeya,*

Table 3: Cardinal manifestation of *Avabahuka*

Sl..no	Parameter	Finding	Score	%
1.	Sula(pain)	No pain at all	0	100
		Mild pain can do Strenuous work	1	75
		Mild pain, can do strenuous work	2	50
		Do daily routine work with great difficulty	3	25
		Cannot do any work	4	0
2.	*Bahupraspandanahar* (range of movement) With the help of goniometer)			
i.	**Flexion (0-180)** The range of flexion was recorded in prone position and arm resting on the side of the body with palms facing medially is taken as 0 degree	Movement up to 151-180 degree	0	100
		Movement up to 121-150	1	80
		Movement up to 91-120	2	60
		Movement up to 61-90	3	40
		Movement up to 31-60	4	20
		Movement up to 0-30	5	0
ii.	**Extension:** The range of extension wasrecorded in prone position and arm resting on the side of the body with palm facing mediallyis taken as 0 degree	Movement up to 21-40	0	100
		Movement up to 0-20	1	0
iii.	**Abduction:** The range of abduction wasrecorded in supine position and arm resting on the side of the body with palm facing mediallyis taken as 0 degree	Movement up to 151-180	0	100
		Movement up to 121-150	1	80
		Movement up to 91-120	2	60
		Movement up to 61-90	3	40
		Movement up to 31-60	4	20
		Movementup to 0-30	5	0
iv.	**Internal rotation:** The range of internal rotation was recorded in supine positionwith 90degrees of shoulder abduction the elbow is in 90degrees of flexion with palms facing medially is taken as 0degree	Movement up to 61-80	0	100
		Movement up to 31-60	1	50
		Movement up to 0-30	2	0
v.	**External rotation:** The range of external rotation was recorded in supine with 90degrees of shoulder abduction and the elbow is in 90 degrees of flexion with palms facing medially is taken as 0 degrees.	Movement up to 61-90		
		Movement up to 31-60		
		Movement up to 0-30		

Table 4: Associated symptoms

Si.no	Parameter	Finding	Score	%
1.	*Atopa* (cracking sound)	No *Atopa*	0	100
		Palpable *Atopa*	1	50
		Audible from a little distance	2	0
2.	*Amsasocha* (muscle wasting of shoulder)	No wasting	0	100
		Mild wasting, can do work	1	70
		Moderate wasting, works with difficulty	2	35
		Severe wasting, cannot move	3	0
3.	*Samkoca* (stiffness)	No stiffness	0	100
		Mild has difficulty in moving the joint without support	1	70
		Moderate, has difficulty in moving, can lift only with support	2	35
		Severe unable to lift	3	0

Table 5: Oxford Shoulder Scale

Activity	Findings	Grade	%
How would you describe the worsen painyou had from your shoulder?	None	0	100
	Mild	1	75
	Moderate	2	50
	Severe	3	25
	Unbearable	4	0
Having any trouble in dressing because of shoulder	No trouble at all	0	100
	A little bit of trouble	1	75
	moderate trouble	2	50
	extreme difficulty	3	25
	impossible to do	4	0
Having any trouble getting in and out of acar or using public transport because of shoulder	No trouble at all	0	100
	A little bit of trouble	1	75
	moderate trouble	2	50
	extreme difficulty	3	25
	impossible to do	4	0
Able to use a knife and fork – at the sametime	Yes easily	0	100
	with little difficulty	1	75
	with moderate difficulty	2	50
	with extreme difficulty	3	25
	no impossible	4	0
Doing the household shopping on patients own	Yes easily	0	100
	with little difficulty	1	75
	with moderate difficulty	2	50
	with extreme difficulty	3	25
	no impossible	4	0
Carry a tray containing plate of foodacross a room	Yes easily	0	100
	with little difficulty	1	75
	with moderate difficulty	2	50
	with extreme difficulty	3	25

	no impossible	4	0
Can do brush/comb hair with the affected arm	Yes easily	0	100
	with little difficulty	1	75
	with moderate difficulty	2	50
	with extreme difficulty	3	25
	no impossible	4	0
Describing the pain usually had	None	0	100
	Mild	1	75
	Moderate	2	50
	Severe	3	25
	Unbearable	4	0
Hang cloths up in a wardrobe- using theaffected arm	Yes easily	0	100
	with little difficulty	1	75
	with moderate difficulty	2	50
	with extreme difficulty	3	25
	no impossible	4	0
Able to wash and dry patient itself under both arms	Not at all	0	100
	A little bit	1	75
	Moderately	2	50
	Greatly	3	25
	Totally	4	0
Intensity of pain from shoulder interfered with usual work	Not at all	0	100
	A little bit	1	75
	Moderately	2	50
	Greatly	3	25
	Totally	4	0
Troubled by pain from shoulder in bed at night	No night	0	100
	Only1 or 2 night	1	75
	Severe night	2	50
	Some night	3	25
	Every night	4	0

Table 6: Result of Subjective nonparametric variable

symptom	No.	Mean		D	%	SD	SE	Sum of all signed rank(W)	P
		BT	FU						
Sula	30	2.63	1.53	1.10	41.77	0.41	0.07	435	<0.0001
Atopa	30	0.17	0.13	0.04	20.00	0.18	0.03	1	>0.9999
Samkocha	30	1.13	0.43	0.70	61.76	0.47	0.09	231	<0.0001
Amsasosh	30	0	0						
symptom	No.	Mean		D	%	SD	SE		P
		BT	AT						
Sula	30	2.63	0.17	2.47	93.67	0.57	0.10	465	<0.0001
Atopa	30	0.17	0.03	0.14	80.35	0.35	0.06	10	0.125
Samkocha	30	1.13	0.10	1.03	91.82	0.32	0.06	435	<0.001
Amsasosh	30	0	0						

Table 7: Result of Parametric variable by Goniometer

symptom	No.	Mean		D	%	SD	SE	Sum of all signed rank(W)	P
		BT	FU						
Bahupraspandanhar									
Flexion	30	2.60	1.57	1.03	39.74	0.57	0.10	6.15	<0.0001
Extension	30	1.00	0.97	0.03	3.33	0.18	0.03	1	0.326
Abduction	30	2.63	1.50	1.13	43.04	0.51	0.09	3.8	0.0007
Internal rotation	30	0	0						
External rotation	30	1.10	0.90	0.20	18.18	0.41	0.07	2.69	0.0117
symptom	No	Mean		D	%	SD	SE		
		BT	AT						
Bahupraspandanhar									
Flexion	30	2.60	0.20	2.38	92.31	0.56	0.10	23.84	<0.0001
Extension	30	1.00	0.17	0.83	83.33	0.38	0.07	12.04	<0.0001
Abduction	30	2.63	0.17	2.47	93.67	0.57	0.10	21.07	<0.0001
Internal rotation	30	0	0						
External rotation	30	1.10	0.07	1.03	93.94	0.18	0.03	31	<0.0001

Table 8: Result in Oxford Shoulder Scale

symptom	No.	Mean		D	%	SD	SE	Sum of all signed rank(W)	P
		BT	FU						
Describing worsen pain from shoulder	30	2.63	1.57	1.07	40.51	0.25	0.05	465	<0.0001
Trouble in dressing because of shoulder	30	2.67	1.60	1.07	40.00	0.25	0.05	465	<0.0001
Trouble in getting in and out of a car or using public transport because of shoulder	30	1.80	1.10	0.70	38.89	0.47	0.09	231	<0.0001
Inability to use a knife and fork – at the same time	30	1.73	1.03	0.70	40.38	0.47	0.09	231	<0.0001
Can't do the household shopping on patient own	30	2.10	1.20	0.90	42.86	0.04	0.07	351	<0.0001
Can't carry a tray containing plate of food across a room	30	1.80	0.90	0.90	50.00	0.31	0.06	378	<0.0001
Can't brush/comb hair with the affected arm	30	1.87	1.10	0.77	41.07	0.43	0.08	276	<0.0001
Describing the pain	30	2.73	1.70	1.03	37.80	0.32	0.06	435	<0.0001
Can't hang cloths up in a wardrobe-using the affected arm	30	2.60	1.57	1.03	39.74	0.56	0.10	465	<0.0001
unable to wash and dry under both arms	30	2.77	1.60	1.17	42.17	0.38	0.07	465	<0.0001
Having pain from shoulder interfered with usual work	30	2.70	1.60	1.10	40.74	0.31	0.06	465	<0.0001
Troubled by pain from shoulder in bed at night	30	2.73	1.57	1.17	42.68	0.46	0.08	435	<0.0001
symptom	No.	Mean		D	%	SD	SE		P

		BT	FU						
Describing worsen pain From shoulder	30	2.63	0.20	2.43	92.41	0.57	0.10	465	<0.0001
Trouble in dressing because of shoulder	30	2.67	0.17	2.50	93.75	0.51	0.09	465	<0.0001
Trouble in getting in and out of a car or using public transport because ofshoulder	30	1.80	0.20	1.60	88.89	0.56	0.01	465	<0.0001
Inability to use a knife and fork – at the same time	30	1.73	0.17	1.57	90.38	0.50	0.09	465	<0.0001
Can't do the household shopping on patient own	30	2.10	0.23	1.87	88.89 0	0.57	0.11	435	<0.0001
Can't carry a tray containing plate of food across a room	30	1.80	0.20	1.60	88.89	0.56	0.10	435	<0.0001
Can't brush/comb hair with the affected arm	30	1.87	0.17	1.70	91.07	0.47	0.09	435	<0.0001
Describing the pain	30	2.73	0.27	2.47	90.24	0.51	0.09	465	<0.0001
Can't hang cloths up in a wardrobe-using the affected arm	30	2.60	0.20	0.40	92.36	0.56	0.10	465	<0.0001
unable to wash and dry under both arms	30	2.77	0.17	2.60	93.98	0.50	0.09	465	<0.0001
Having pain from shoulder interfered with usual work	30	2.70	0.17	2.53	93.93	0.51	0.09	465	<0.0001
Troubled by pain from shoulder in bed at night	30	2.73	0.20	2.50	92.68	0.78	0.14	465	<0.0001

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