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STUDY THE EFFECT OF ASTHISHRINKHALA (CISSUS QUADRANGULARIS) AND ASHWAGANDHA (WITHANIA SOMNIFERA) CHURNA IN THE MANAGEMENT OF ASTHIKSHAYA W.S.R TO SENILE OSTEOPOROSIS

Ayurveda

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ABSTRACT

Asthikshaya is degenerative changes where depletion of Asthidhatu is seen. Defining feature of Osteoporosis (Asthikshaya) is reduced bone density which causes micro architectural deterioration of bone tissue and leads to an increased risk of fracture.[1]
By Ashrayashrayibhaava- Vata dosha and Asthi Dhatu is inversely proportional to each other. Vata vruddhi causes Asthikshaya.[2]
So, patients were diagnosed with osteoporotic range. 80 patients were taken in study which was divided in group A (40 patients) trail group in which drug Asthishrinkhala Churna and Ashwagandha Churna and Group B Tablet Calcium Carbonate were taken. Pre and post screening of BMD and Sr. Calcium done.
Observation and Statistical Analysis shows that treatment was significantly effective in the parameters of Asthi Shool , BMD, Sr. Calcium.

KEYWORDS

Asthishool, Asthikshaya, Osteoporosis, Asthidhatu

INTRODUCTION :-

Asthikshaya (Osteoporosis) is a global dilemma which is increasing exponentially in growing elderly population. This affects both males and females, all races with different degree.

Risk of Osteoporosis in women are 30-40% and in men are 13-15%.Women are at higher risk but this risk increases even more at menopause.[3]

Asthikshaya is Vata prakopaka nidanas where Asthi and Vata have Ashraya ashrayi bhava. Apart from Vata prakopa nidanas, dushti of Medovaha, Asthivaha , Majjavaha and Purishwaha strotas are also major reason for Asthikshsya.[4,5]

Asthikshaya is understood as decrease in the Poshakamsha (nutrient supply) to Asthidhatu leading to Kshaya of Asthidhatu and its functions along with its Upadhatu (Ch.S.Su.17/62-72) .[6]

In modern science Osteoporosis is defined as "Detoriation of bone tissue with consequent increase in bone fragility and succeptibility to fracture charecterized by low bone mass"[6]

When the bone formation decreases and bone resoption increases it leads to bone degeneration causing Osteoporosis. The etiogical factors of Osteoporosis are increasing age, sex, hormone defiency, caucasian race, low body mass index, malnutition, low calcium intake, smoking, alchohol, prolonged corticostreroids.[8]

In management of Osteoporosis, it has been utilised to prevent bone loss, include calcitonin and bisphosphonates, and preventing the fractures, calcium supplement, sodium fluroid, ossein hydroxyapatite compound, Vitamin D analogues, estrogen replacement therapy, parathyroid hormone, anabolic steroids and growth hormone and maintaining the bone mass with vitamin D supplementation, hormone replacement therapy and use of drugs.[9,12]

In Ayurveda, there are many drugs which are mentioned as Asthiposhak. But we selected Asthishrinkhala and Ashwagandha churna, as it is Asthiposhak and Balya so far due to its qualities which aims at increasing the Asthi dhatu by using the same Gunas of Asthi dhatu.

Ayurvedic drug Asthishrinkhala have Calcium content and it have good effect on Asthidhatu, Asthikshaya i.e. Osteoporosis and Ashwagandha is balya in property and both help in gaining bone density hence in present study Asthishrinkhala and Ashwagandha is used to treat Osteoporosis.[10]

MATERIAL AND METHODS:-

In study, enrolled 80 patients aged more than 50 years, both sex groups will be taken as per prevalence in OPD and IPD of department of Shalya tantra, Bharati Vidyapeeth (Deemed to be) University, College of Ayurveda and Hospital, Katraj-Dhankawadi, Pune (India) where they are divided into two groups

Group A - Trial group.- Asthishrinkhala churna + Ashwagandha churna.
Group B - Control group- Calcium tablet.

And simple randomised sample using chit method.

CRITERIA FOR ASSESSMENT

A. INCLUSION CRITERIA:

- Age: More than 50 year included in case study.
- Patients having Osteoporosis and Asthikshaya lakshanani included in case study.

B. EXCLUSION CRITERIA:

- Patient having Asthishool due to trauma excluded from case study.
- Patient having Osteomyelitis excluded from case study.

PROCEDURE:

Group A - Trial group (Asthishrinkhala and Ashwagandha churna)

- Sample size – 40 patients
- Asthishrinkla and Ashwagandha churna.
- Anupan – Koshnajal
- Dosage – 1gm daily after meal .

Group B – Control group (Calcium tablet.)

- Sample size – 40 patients.
- Tab. Calcium supplements.
- Dose – 1gm daily
- Once in a day after meal.

INVESTIGATIONS -

- Sr. Calcium (If required)
- Vitamin D3 (If required)
- BMD

FOLLOW UP :-

Table no. 1 showing assessment criteria for follow up patients

Follow Up Day	Asthishoola (Pain)	Bone Mineral Density (BMD)
DAY 0		
DAY 5th		
DAY 10th		
DAY 15th		

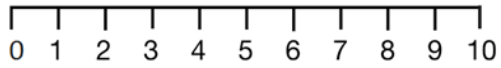
BMD and Sr Calcium done before treatment and after completion of treatment.

ASSOCIATED COMPLAINTS:
- TENDERNESS
- CREPITUS

Follow up will be on 0,5th,10th and15th day.

PARAMETERS OF ASSESSMENT

1. Method of assessment of subjective parameters-
- PAIN -Pain was calculated on **visual analogue scale** and scored as 0 to 10.



ASSOCIATED COMPLAINTS
- CREPITUS
- TENDERNESS-

2. Methods of assessment of objective parameters-
- Serum Calcium level
- BMD

Table no. 2 showing

T-SCORE	CONDITION
+1 to -1	Healthy Bone Density
-1 to -2.5	Osteopenia
-2.5 to -3.0	Osteoporosis
-3 and lower	Severe Osteoporosis

DIAGNOSTIC CRITERIA :-

Patient diagnosed on the basis of symptoms of Asthikshaya (Osteoporosis) explained in Ayurvedic classics and BMD.
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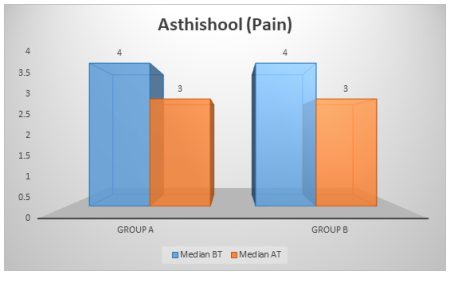
RESULT

TABLE no. 3 showing Pain wise Distribution of 80 patient in Asthikshaya

Asthishool (Pain)	Median		Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT				
Group A	4	3	-4.860a	0.000	41.9	Significant
Group B	4	3	-5.294a	0.000	36.5	Significant

We have used Wilcoxon Signed Rank Test to test efficacy in Group A and Group B where we can observe that P-Values for Group A and Group B are less than 0.05. Hence we conclude that effect observed in both groups are significant.

GRAPH 1 shows Pain wise Distribution



In GROUP A – Patients got 41.9% relief from pain where as in GROUP B - Patients got 36.9 % relief from pain

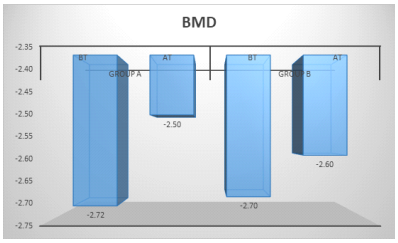
BMD

Table no. 4 shows BMD wise Distribution

BMD		Mean	N	SD	SE	Z-Value	P-Value		Result
Group A	BT	-2.72	40	0.20	0.03	-1.785	0.042	1.00	Sig
	AT	-2.50	40	0.83	0.13				
Group B	BT	-2.70	40	0.19	0.03	-9.174	0.000	1.00	Sig
	AT	-2.60	40	0.17	0.03				

Since observations are quantitative and sample size is greater than 30. We have used Z-Test to test efficacy in Group A and Group B. From above table we can observe that P-Values for Group A and Group B are less than 0.05. Hence we conclude that effect observed in both groups is significant.

GRAPH 2- BMD wise Distribution



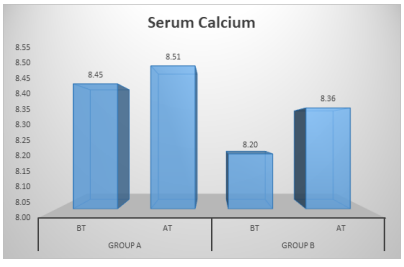
SERUM CALCIUM

Table no. 5 shows Sr Calcium Distribution

Serum Calcium		Mean	N	SD	SE	Z-Value	P-Value	% Effect	Result
Group A	BT	8.45	31	0.53	0.09	-3.321	0.002	1.00	Sig
	AT	8.51	31	0.47	0.08				
Group B	BT	8.20	37	0.58	0.10	-7.274	0.000	2.01	Sig
	AT	8.36	37	0.52	0.09				

Since observations are quantitative and sample size is greater than 30. We have used Z-Test to test efficacy in Group A and Group B. From above table we can observe that P-Values for Group A and Group B are less than 0.05. Hence we conclude that effect observed in both groups are significant.

GRAPH 3 shows Sr Calcium Distribution



Comparison between BMD and Sr calcium

TABLE no.6 shows Comparison between BMD and Sr calcium :

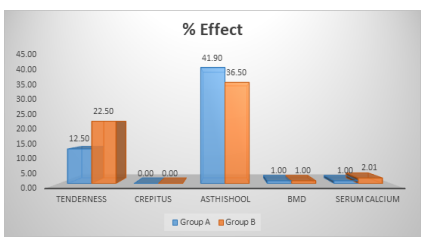
	Group	N	Mean	SD	SE	Z-Value	P-Value
BMD	Group A	40	0.23	0.80	0.13	0.930	0.355
	Group B	40	0.11	0.06	0.01		
Serum Calcium	Group A	40	0.07	0.09	0.01	-0.340	0.521
	Group B	40	0.15	0.14	0.02		

For comparison between Group A and Group B we have used Z-test. From above table we can observe that P-Value are greater than 0.05. Hence we conclude that there is no significant difference between Group A and Group B.

OVER ALL EFFECT DISTRIBUTION:-

TABLE no. 7 shows Over all effect Distribution

	% Effect	
Parameter	Group A	Group B
Tenderness	12.50	22.50
Crepitus	0.00	0.00
Asthishool	41.90	36.50
BMD	1.00	1.00
Serum Calcium	1.00	2.01



GRAPH 4 shows Over all effect Distribution of 80 patient in Asthikshaya

Overall effect seen on the basis of on the improvement of subjective and objective parameters.

In group A- Tenderness – 12.50% reduced, Asthishool -41.90% reduced, bmd -1.00% effect seen, sr calcium- 1.00% seen.

In group B- Tenderness – 22.50% reduced, Asthishool -36.50% reduced, bmd -1.00% effect seen, sr calcium- 2.01% seen.

The clinical trial of Asthishrinkhla and Ashwagandha churna in Asthikshaya i.e osteoporosis was carried out and it was found that the Asthishrinkhala and Ashwagandha churna useful in reducing pain,tenderness and mild increase in BMD and serum calcium. However the drug used for control group has also found similarly helps in mild increase in BMD and Serum calcium. Statistically we found that both the groups has shown significant effects.

DISCUSSION :-

In Saptha dhatus, Asthi dhatu is included in 5th position. Sharir Dharana is the function of Asthi. It is the hardest and strongest Dhatu. Asthi Dhatu and diseases related to it has been mention in old literatures.

So we have choosen the Asthikshaya, disease of Asthi Dhatu which is correlated with Osteoporosis in modern science. It is most common condition found in elderly growing population. Females are more prone to these condition due to post menopausal.

The reduction of Asthi Dhatu in Asthi Kshaya which means decreased in density of bone tissue. Through Ashrayashrayi bhaava Vata Dosha and Asthi Dhatu inversely proportional each other. Asthikshaya lakshana are Asthi and Sandhi pain, Doubalya, Kesh, Roma, Nakha, Danta Vikara and Pata, Rukshata, tenderness etc. It is a Kashta Sadhya disease.

Both Asthishrinkhala And Ashwagandha are Madhur Rasatmak, Guru, Snigdha, helps in Balya, Bruhniya, Snehana, Dhatuposhak, Sandhaniya Karma and helps In Shaman Of Vitiated Vata Doshas.[11] Asthishrunkla Been Sheeta Veerya, It's Dhatuposhak, Balya And Reduces Rukshata By Its Guru Guna. Ashwagandha is Rasayana in nature and its been Ushna Veerya, so leads to Shaman of Vata.

So, In Asthikshaya, Doshas which are affected i.e. Vata, causes Rukshata, Shula, Tenderness.

According To Modern Review, Cissus Quadranularis Contains Flavonoides, Vitamin C, Phytosterol, Ketosteriods, Tetracyclic, Tryterpiniods, Calcium Whereas Withania Somnifera Contains Alkaloids, Withaferin A (Steroidal Lactones), Saponins, Immunom odulator, Steroidal Astringents, Stimulants.

Active constituent is KETOSTERIODS in Asthishrinkhala i.e helps in antagonist to glucocorticoid receptor and promotes good bone health, increases intramuscular creatinine levels, anabolic steroid properties for healing of fractures.

In Ashwagandha, Active Constituents is WITHAFERIN- A prevents the loss of bone mineral density , especially after menopause, increases the action of bone producing gene and reducing bone resorption. It also lowers stress and inflammation. Also promotes bone healing after injury and osteoporotic bones. [14,15]

Asthishrinkhala has been mentioned in various formulations for improvement of bone loss, stops bone degeneration same as with Ashwagandha its been Rasayana Promotes the Saptadhatu Vardhan.

As Calcium is Present in Asthishrinkhala and Ashwagandha is in Balya property we have choosen the drug as combine 80 patients were taken in sample size the study was randomised trial 40 were in group A i.e trail group in which the drug had given Asthishrinkhala Churna and Ashwagandha Churna 1 gm OD with lukewarm water and in Group B Tablet calcium Carbonate 1gm OD.

CONCLUSION:-

This study shows that Trial drug is as effective as control drug as both the group shows significant effects in osteoporosis by reducing pain and tenderness.

But the crepitus was seen after the completion of the treatment i.e. There is no effect on Crepitus. There was mild increase in BMD and serum calcium in both groups.Throughout the study no adverse reaction or harm is seen due to drug.

Overall it is showed that both the groups as shown the significant effect. The efficacy of this drug will show with long term therapy.

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