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ESTIMATION OF ESR AND BMD T-SCORE ON TREATMENT OF *CISSUS QUADRANGULARIS* LINN AND *ZINGIBER OFFICINALE* ROSC IN OSTEOARTHRITIS PATIENTS

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ABSTRACT

Background: Osteoarthritis represents a major cause of morbidity, disability and social isolation, especially where the hip and knee are involved. The classification and nomenclature of osteoarthritis are problematic and the multifactorial nature of osteoarthritis is well recognised. **Methods:** Total 60 patient's data was collected in S.V Ayurvedic Medical College and Hospital. Estimation of Erythrocyte sedimentations rate (ESR) and T-Score levels are before and after treatment of tested drugs in osteoarthritis patients. Treatment groups were: **Group-A:** *Cissusquadrangularis* linn-5 gm; **Group-B:** *Zingiber officinale* rosc-5 gm; **Group-C:** *Cissusquadrangularis* linn+ *Zingiber officinale* rosc-5 gm, all groups are twice a day orally with luke warm water. **Results:** Before and after treatment of tested drugs reduction in ESR was observed as follows (mean ± SD) Group A: 59.85 ± 22.013 to 14.25 ± 3.291 ($p< 0.0001$); Group B: 66.5±18.495 to 15.5±4.310 ($p<0.0001$); and Group C 71.85±19.543 to 17.1±5.609 ($p< 0.0001$). Before and after treatment of tested drugs increase in BMDT-Score was observed in all three groups as follows (mean ± SD) Group A: -1.33±1.057 to -1.29±1.073 ($p<0.001$); Group-B: -1.525±1.301 to -1.410±1.304 ($p<0.001$); Group C:-1.390±1.389 to 1.235±1.361 ($p<0.0001$). **Conclusion:** Present study reveals that improvement in terms of reduction in ESR was observed in all tested groups and improvement in terms of increase in BMD T-score was observed in all three groups.

KEYWORDS: Osteoarthritis, ESR, BMD T-score, South India.

INTRODUCTION

Osteoarthritis affecting millions of people worldwide and is the leading cause of disability with arthritis has a massive impact on a person's daily life. The theme for world arthritis day 2015-2016 "it's in your hand, take action" World arthritis day is notable each year on the 12th October. It was first reported in 1996 by Arthritis and Rheumatism international with the aim to raise awareness of issues affecting people with rheumatic and musculoskeletal diseases within the medical community as well as the general population. The goal of treatment for osteoarthritis patients are to eliminate symptoms, slow disease progression, and optimize quality-of-life.[1] Cissus quadrangularis Linn. was grows almost everywhere in the plains of India. It is one of the essential medicines in the Indian System of Medicine. The various parts of plants used in asthma, dog bite, insect bite, as alterative and stomachic, in scurvy, menorrhagia and digestive disorders, anti-inflammatory, promote wound - healing and cardiovascular activity, menstrual disorders, epitasis, and in hypotension.[2] The Modern therapy for rheumatism includes medications with steroids, non-steroidal anti-inflammatory drugs (NSAIDS), disease modifying anti-rheumatic drugs (DMARDS) and immunosuppressant drugs.[3] It is currently diagnosed on the basis of American Rheumatism Association's (ARA) revised criteria, radiographic changes and routine blood tests for ESR, CRP and RF.[4,5] Early and accurate diagnosis of osteoarthritis is important for timely clinical intervention

to prevent the irreversible joint destruction that otherwise might progress to erosive, destructive, and disabling forms.[6,7] The currently used blood tests are useful to some extent for the diagnosis of osteoarthritis and provide supporting evidence for radiographical and clinical findings. However, they greatly suffer from poor specificities and sensitivities and therefore cannot be the sole basis for the early diagnosis of osteoarthritis[8]

METHODOLOGY

Treatment of osteoarthritis patients

The clinical study was carried out total 60 patients in Department of Dravyaguna, S.V Ayurvedic Medical College, Tirupathi with treatment of Cissus *quadrangularis* linn powder *and zingiber officinale* rosc powder in osteoarthritis patients. Study was conducted after obtaining the institutional ethical committee approval from 2015 to 2016. The total patients were divided in to 3 groups (A,B,C) and treated in the interval of 15 days, each group consists of 20 patients and blood samples were collected and analyzed ESR (Estimation of Erythrocyte sedimentation rate) and BMD T-SCORE after treatment of tested drugs.

Treatment Groups

1. Group A – Treatment of Cissus *quadrangularis* linn 5gm/dose twice a day/orally.
2. Group B - Treatment of Zingiber *officinale* rosc. 5gm/dose twice a day/orally.
3. Group C - Treatment of Cissus *quadrangularis* linn + *Zingiber officinale* rosc.5gm/dose twice a day orally with luke warm water.

b. Inclusion criteria

- Patient's age group of 31-70 years was selected.
- Patient with osteoporosis & osteophytic changes.
- Obese patients.
- Patients with history of Trauma.
- Patients with Endocrine disorders mainly menopausal women.

c. Exclusive criteria

- Patients age below 31 and above 70 years.
- Patients suffering from Carcinoma and psoriatic arthritis.
- Patients suffering from Ankolysing arthritis.
- Patients suffering from Poliomyalgia and Rheumatoid arthritis.

Statistical analysis

The statistical package Graph Pad Prism 3.1 version was used to analyse all results. Values are expressed as mean ± SEM. One way ANOVA followed by post hoc Dunnett's test was used for analysis of data and for comparisons between treated and control groups; $p < 0.05$ was considered significant.

RESULTS

Table 1: Showing effect of ESR on before and after treatment of three tested groups.

ESR	Before treatment Mean±S.D.	After treatment Mean±S.D.	Within the group Paired' t' test value BT-AT	Mean difference	Between the group comparison oneway Annova F value
Group A	59.85±22.013	14.25±3.291	t = 9.271 p<0.0001	45.600±21.996	F = 2.012
Group B	66.5±18.495	15.5±4.310	t = 14.275 p <0.0001	51.000±15.977	P=0.1432
Group C	71.85±19.543	17.1±5.609	t =13.811 p <0.0001	54.750±17.729	P >0.05

The data of the above table states that improvement in terms of reduction in ESR was observed in all three groups. Initial mean ± SD was observed 59.85 ± 22.013which comes to 14.25 ± 3.291 after completion of study in group A which was statistically extremely significant also ($p< 0.0001$). Similarly mean difference group B 51.000 ± 15.977 ($p < 0.0001$) is extremely significant and in group C 54.750 ± 17.729 ($p< 0.0001$) was also statistically extremely significant respectively. Above table shows that intergroup comparison of improvement in terms of reduction in ESR between groups was statistically not significant (Table-1).

Table 2: Showing effect of BMD T-score on before and after treatment of three tested groups.

BMD T-score	Before treatment Mean±S.D	After treatment Mean±S.D	Within the group Paired' t' test value BT- AT	Mean difference	Between the group comparison oneway Annova F value
Group A	-1.33±1.057	-1.29±1.073	t = 3.559 p = 0.0010 very significant	-0.04000±0.05026	F = 0.1021
Group B	-1.525±1.301	-1.410±1.304	t = 3.286 p = 0.0019 very significant	-0.1150±0.1565	P=0.9031
Group C	-1.390±1.389	-1.235±1.361	t =10.100 p <0.0001 extremely significant	-0.1550±0.06863	P >0.05

The data of the above table states that improvement in terms of increase in BMD T-score was observed in all three groups. According to the table initial mean ± SD increased from -1.390 ± 1.389 to -1.235 ± 1.361 in group 'C' which was statistically extremely significant ($p<0.0001$). In group 'A' and 'B' the effect of trial drugs in BMD T-score was very significant ($p<0.001$). Above table shows that intergroup comparison of improvement in terms of increase in BMD T-score between groups was statistically not significant. (Table-2).

DISCUSSION

Osteoarthritis (OA), also often called osteoarthritis or degenerative joint disease, is the most common form of arthritis.[9] It is extremely common in persons over 40 years of age and is one of the most prevalent diseases of elderly people[10] In most people, OA signs and symptoms are limited to one or only a few joints, and symptoms related to primary OA are generally uncommon in people under the age of 40 years – even when evidence exists of pathological changes having taken place. The involvement of many joints may, therefore, suggest a systemic form of OA[11] While a dominant pathological feature of the osteoarthritic joint is focal loss of damaged articular (Hyaline) cartilage, it is now understood that OA is a disorder of the whole joint organ and not just the cartilage.[12] In a minority of people with OA, the condition is of a generalised nature and involves three or more groups of joints (e.g. hands, feet, knees, hips, spine). It follows that for a proportion of people, OA of the hip or knee will constitute just one of a number of joints affected, often contemporaneously and in accordance with a diagnosis of 'generalised OA'. Although genetic factors are known to be involved in this condition, the genes related to its development remain largely undetermined.[34] An assessment of the overall prevalence of OA is made difficult due to differences in the criteria and definitions that have been used in different studies.[13,14] One such area of enquiry concerns the comparison of treatment provided by primary care physicians with that of rheumatologists and other hospital-based doctors. Study findings suggest that while primary care physicians are largely responsible for diagnosing and treating joint problems, they may be inadequately trained in this area.[15] At the macroscopic level, the key characteristics of an OA joint are swelling, fibrillation, erosion and eventual loss of articular cartilage, together with the remodelling of underlying bone resulting in subchondral sclerosis, bone cysts, an increase in metaphyseal bone and the development of osteophytes (spurs). The end point of OA is eburnation, in which the focal loss of cartilage at the articulating surface of a bone reaches the stage where the underlying bone becomes exposed and subjected to increasingly localised overloading.[16] Present study reveals that improvement in terms of reduction in ESR and increase in BMD T-score was observed in all three groups.

CONCLUSION

Present study reveals that improvement in terms of reduction in ESR was observed in all tested groups and improvement in terms of increase in BMD T-score was observed in all three groups.

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Conflict of Interest: None declared.

Ethical approval: Institutional Ethical committee approval obtained.

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