PREVALENCE OF MEDIAL CALCANEAL NEUROPATHY,CAUSE HEEL PAIN IN GIRLS WHO WEARS HIGH HEELS.

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KEYWORDS
Heel pain ,medial calcaneal neuropathy ,Tinel's sign

ABSTRACT

BACKGROUND :
In this topic there is prevalence of calcanealneuropathy which causesPain in the plantar heel is a frequent issue that can be very uncomfortable chronic plantar heel pain has been linked to a number of neurological Etiology including entrapment neuropathy of the medial calcaneal nerve a branch of the posterior tibial nerve. One kind of tarsal tunnel syndrome is through to be medial calcaneal neuropathy.

OBJECTIVE :
The study was done to determine the prevalence of medial calcaneal neuropathy which causes heel pain.

METHODS:
The study was an observational study which include 357 girls in Karad which includes rural and urban area. Consent forms was explained and signed by the participants. The test performed was specific to neuropathy Tinel's sign.

RESULT :
on the basis of the study 84.5 girls has pain and 15.5 girls is not having pain in both urban and rural area .

CONCLUSION :
The study concluded that there is a significant portion of individuals with persistent plantar heel pain have medial calcaneal neuropathy.

INTRODUCATION :

There is medial calcaneal nerve in every subject it might originate from the lateral plantar nerve or the tibial nerve depending on which direction the former bifurcates. It innervates the heel pads skin as well as the flexor retinaculum. It is there for a clinical source of heel pain.[1] Pain in the plantar heel is a frequent issue that can be very uncomfortable chronic plantar heel pain has been linked to a number of neurological Etiology including entrapment neuropathy of the medial calcaneal nerve a branch of the posterior tibial nerve. One kind of tarsal tunnel syndrome is through to be medial calcaneal neuropathy.[1,2] Tarsal tunnel syndrome, which results from compression of the posterior tibial nerve as it passes through the flexor retinaculum, medial calcaneus, posterior talus, and medial malleolus, may be the source of heel pain, especially when one is carrying weight for extended periods of time.[4]The inferior medial and posterior part of the heel as well as the calcaneus get sensory innervation from the medial calcaneal nerve Which is a sensory nerve and the first branch to emerge from the posterior tibial nerve at the ankle level. while medial to be the second most frequently reported neuropathy of neural origin causing plantar heel pain. It is typically overlooked in the differential diagnosis of plantar heel pain particularly chronic cases it symptoms are frequently subjective are resemble those of other heel and foot pathology disease making diagnosis challenging few research have evaluated this problem.[2] Foot discomfort accounts for 15%of pain in the heel. Inflammatory illnesses, plantar fasciitis, calcaneal fracture, calcaneal apophysitis, heel pad atrophy and nerve involvement can all result in pain. Neural causes of pain include entrapment of tibial, plantar or medial nerve. In the heels, the medial calcaneal provides the majority of soft tissue feeling. A through examination and history are necessary for the diagnosis of heel pain resulting from neurological sources. Before ruling out other possible reasons of heel pain, surgery should not be performed. The diagnosis ought to be re-evaluated after receiving

conservative treatment [3]. The major nerve of the inner side of the ankle gives origin to the medial calcaneal nerve, which then leaves the skin covering the medial face of the heel after piercing the laciniate ligament and moving downhill beneath the inner side of the ankle's bony projection.[5]

Nerve affected due to:- The nerve is usually compressed between a static and a moving surface when entrapment occurs. The nerve experiences frequent sliding or friction while the body moves, which can cause compression and stress. This trauma may lead to anatomical changes that ultimately result in discomfort and loss of function, as well as damage to the nerve's outer sheath, which aids in signal transmission.

1.overpronation- when girls wears high heels they can not walk properly because they cannot balance there body on heels.

2.footwear-when girls use continuously high heels there whole body pressure on heel cause nerve become pinched. When girls wears continuously high heels increase the risk factor developing calcaneal nerve injury.[4] In the regions that the nerve supplies—below the inner bony projection of the ankle and behind the heel there is pain and Paraesthesia (burning or tingling). Typically, the discomfort starts on the inside of the heel and moves toward the middle. [5] Anything you do could make the agony worse. Burning, tingling, or numbness along with heel pain may indicate a neuropathic cause. These symptoms most frequently point to nerve entrapment brought on by trauma, misuse, or damage of medial calcaneal nerve.[4]

Additional reasons of heel pain include heel pad syndrome (deep, bruise-like pain in the middle of the heel), neuromas, plantar warts, and calcaneal stress fracture (pain that gradually gets worse after increasing activity level or switching to a harder walking surface with heels). Symptoms of medial calcaneal neuropathy-burning pain near medial malleolus, pain may resurface in the arch of the foot beneath the sole. Tingling sensation as well as numbness.[3]

METHODS:

a. Type of study: - Survey study
b. Study design: - Observational study
c. Sampling method: -Convenient sampling Method
d. Place of study: - Karad
e. Study population: Girls who wearing heels.
f. Sample size: $n = \frac{[Z(1-a/2)]^2 p(1-p)}{a^2}$

$$Z=\frac{(1.96)^2 x 60.52 x 39.48}{25}$$

$$Z=357$$

Where n = sample size

Z = standard normal variant at 95% = 1.96

p = proportion of diabetic patients = 12%

q = 100 – 12

L = 5 (permissible limit of error)

n = 357

g. Study population: Girls/female.

MATERIALS: -

a) Data collection sheet.

b) Consent Form

➢ INCLUSION CRITERIA:-

Female experiencing heel pain,

Age 20-40 years females.

Girls who wearing high heels.

Girls willing to participate.

➢ EXCLUSION CRITERIA

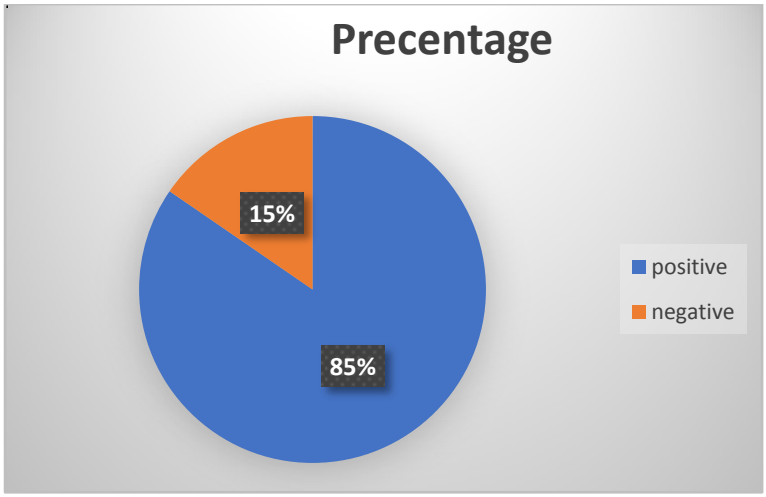
- Male.
- Pregnancy induced heel pain.

PROCEDURE : patient position is sitting on chair, towel roll is placed under the unaffected leg and affected leg is placed on other leg in figure of 4 ,therapist should tap on medial side of leg posterior medial calcaneal .if patient experience tingling sensation or pain the test is positive.

RESULT:

Tinel sign assessment-

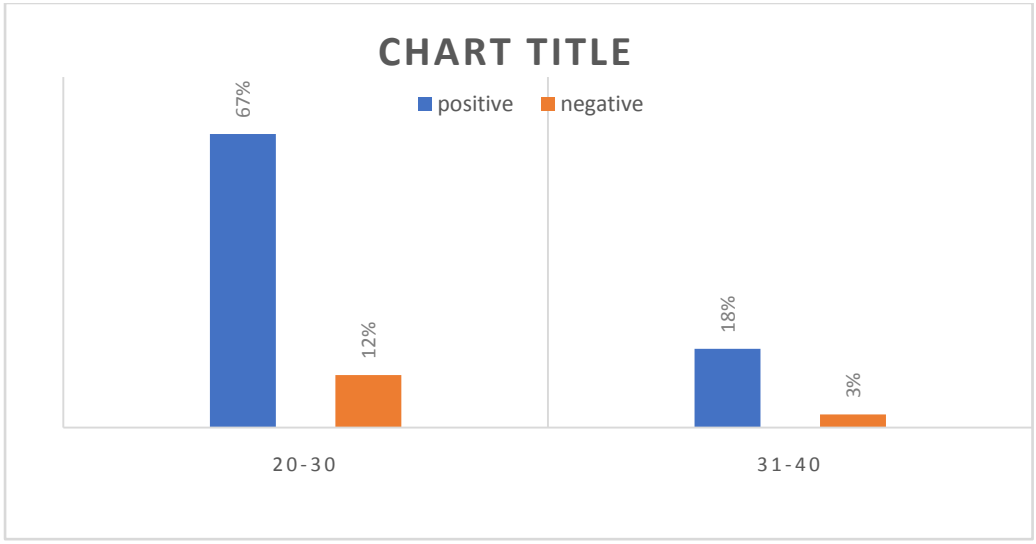
Tinel's sign	Percentage
Positive	84.50%
Negative	15.40%



INTERPRETATION NO.1: Here special test is performed on the participants where 84.50 % has pain after performing the test which is positive , 15.40% are negative

2.Age distribution-

Sign	20- 30	31-40
Positive	67%	18%
Negative	12%	3%

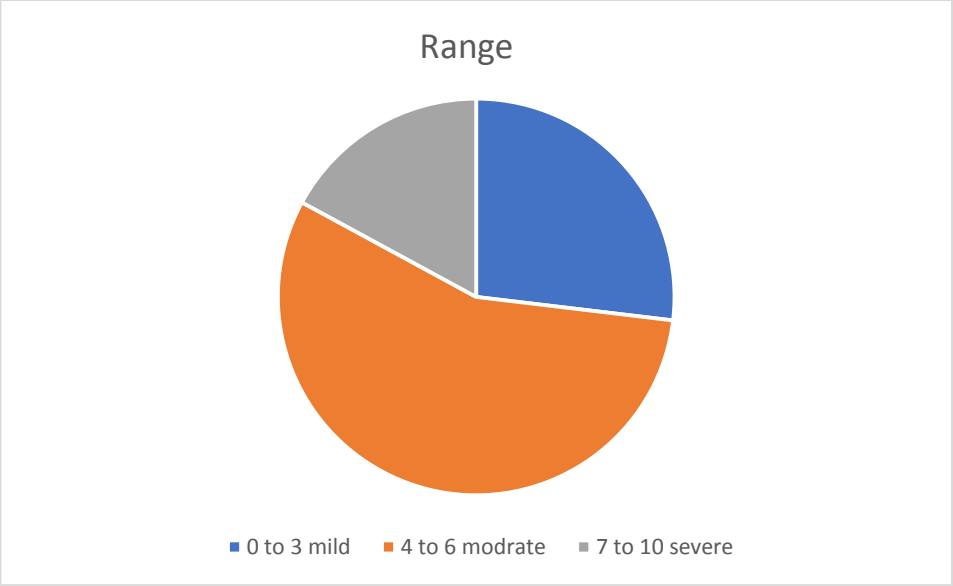


INTERPRETATION NO.2 : here according to the age of the patients age group between 20 to 30 ,12 % participants are negative and 67 % result is positive .

Age group between 31 to 40 3 % are negative and 18 % result is positive

3.visual analogues scale-

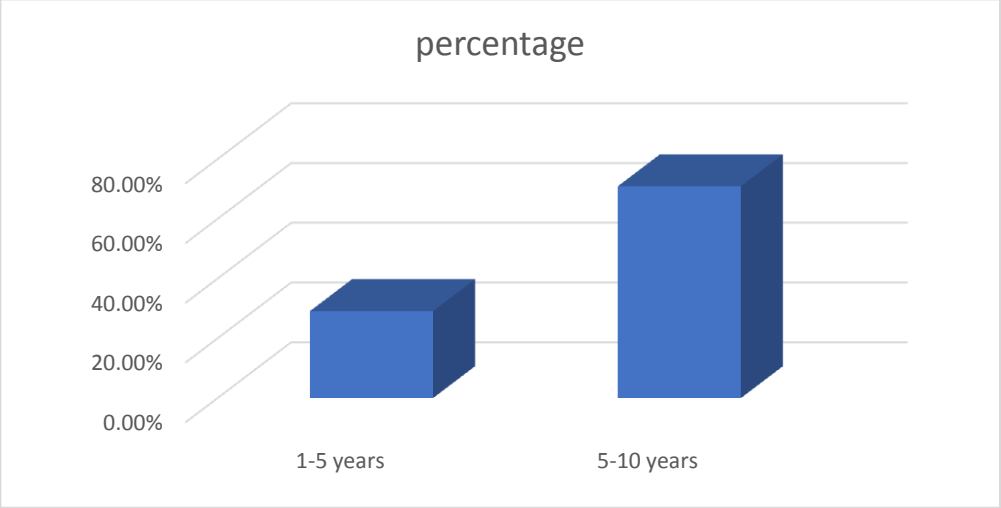
vas on activity		Range
0-3	Mild	96
4-6	Moderate	200
7-10	Severe	61



INTERPRETATION NO 3: pain during activity is moderate between range 4 to 6 and pain during rest is 0.

4.Duration of using high heels-

Years	Percentage
1-5 years	29.10%
5-10 years	70.90%



INTERPRETATION NO.4: participants using high heels for more duration for 5 to 10 years is more.

DISCUSSION :

There are many jobs that require girls to wears high heels. So, now a day girls are using high heeled sandals in big way which has an effect on heel. it affected on the life style. This situation is seen everywhere as well as day by day because of they mostly use high heeled sandals. and they suffering from heel pain. So this subject chosen for prevalence study. This subject is important for the study because of heel pain is common cause in girls due to wearing high heeled sandals. Thus there is growing need to make those girls to aware what are the complication of wearing high heeled sandals. Population selected in adult age group of girls and females. whose wearing high heels and experiencing heel pain. Medial calcaneal neuropathy commonly seen in 20-40 age group of female and the voluntary participate girls or females.

The Present study to find the prevalence of girls whose suffering from medial calcaneal neuropathy cause heel pain who wears high heels. And also determine the presence of medial calcaneal neuropathy as cause heel pain. The study is prevalence of medial calcaneal neuropathy causing heel pain in girls who wears high heels. Each participant gave informed consent after being informed about the study.

Demographic data collection and history taking of presence of burning pain and /or numbness over the media malleolus. The assessment of sensation over the medial calcaneal nerve was taken to detect the in severe condition sensory loss of the region of medial malleolus .The diagnosis of medial calcaneal neuropathy, was taken assessment of pain assessment , visual analogues scale(for pain history)and Tinel`s sing assessment to the finding of sensory conduction study of medial calcaneal neuropathy. were used to confirm the diagnosis was based on the presence of either an objective sensory loss or a subjective burning and tingling sensation in the medial calcaneal neuropathy, with or without the presence of positive Tinel`s sign in an area inferior and posterior to the medial malleolus. Tinel's sign is positive when there is trapping of the medial calcaneal nerve. To test the nerve, lightly tap the skin over it. This will cause tingling in the nerve's supplied area.

It's important to distinguish between medial calcaneal nerve compression and other heel pain conditions like plantar fasciitis and tarsal tunnel syndrome. Getting the right diagnosis is essential to getting the intended outcomes

Statistic analysis data was done. P value is 0.001. descriptive measures [minimum, maximum, percentage, mean, standard deviation (SD)] was done.

CONCLUSION :

Since a significant portion of individuals with persistent plantar heel pain have medial calcaneal neuropathy. This condition should be taken into consideration during assessment when evaluating any patient experiencing persistent plantar heel pain. should be made to improve women`s awareness regarding this neuropathy and to achieve favorable outcomes and avoid future complications of the condition.

AKOWLEDGEMENT :

First and foremost I would like to thank the Almighty, for all the things bestowed upon me and for the blessings on me for completion of my project.

With due respect, I would like to thank Honourable Late Shri Jaywantrao-ji

Bhosale - Founder, KVV, Honourable Dr. Suresh Bhosale – Chairman and Chancellor, Krishna Charitable Trust, Dr .Pravin H. Shingare -Pro-chancellor, KVV, Dr. Vedprakash Mishra, Chief Advisor to Chancellor, KVV and Dr. Neelam Mishra -Honourable Vice Chancellor, KVV for giving me an opportunity to pursue the course of the BPT in their esteem organization and providing me with the best of the amenities and facilities for the study.

I would like to express my most humble and profound gratitude to my respected Dean Dr. G. Varadharajulu, Dean, Faculty of Physiotherapy, KVV for his inspiration, motivation, valuable guidance and suggestions throughout this project.

I wish to express my sincere thanks to Dr. Mahendra Alate , Department of Biostatistics, KVV for helping to carry out statistical analysis.

I would also like to express my sincere thanks to Dr. Ankita Durgawale , associated professor of neurology department, Krishna College of Physiotherapy, KVV, all teaching and non-teaching staff of Faculty of Physiotherapy, KVV, for their valuable suggestions and guidance.

I express my sincere thanks to the volunteers who participated in my project for their kind cooperation in my project work.

Above all, with all love, I thank my Mother Mrs. Rekha Shinde , Father Mr. Shrikrishna Shinde. for their love and care. I dedicate my work to them, for they are reason for my existence and their pride only cherished rewards for my every effort.

Last but not the least I would like to thank my colleagues, friends, juniors and all other people who have contributed directly or indirectly in my work for extending their never ending affection and making this journey worthwhile

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