

Prevalence of Heel Pain in Farmers

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Abstract

Objectives: The objective of this study was to find out prevalence of heel pain in farmers.

Method: Study was conducted with 100 subjects in and around Karad. Subjects were selected as per inclusion and exclusion criteria and consent was taken. Both males(56) and females(44) subjects were included for study. Then they were assessed with help of foot pain questionnaire, study was done according to results obtained the conclusion was given.

Result: After analyzing the data, it was found that there is a prevalence of heel pain in farmers. 24% of subjects are having heel pain & 76% of subjects do not have heel pain. It is found that prevalence of heel pain is more in females than males and pain distribution is more in age group of 41 to 51.

Conclusion: The prevalence of heel pain is more in females and precautions should be taken by farmers by modifying their work strategies to avoid further damage.

Keywords: Heel pain, Farmers, Musculoskeletal Condition.

Introduction

Foot and ankle health is important because pain in this region can make it difficult to accomplish day to day jobs. Heel pain is also can impair the quality of daily activities, state of mind and performance of an individual. Most common causes of heel pain are:

1. Plantar fasciitis
2. Retrocalcaneal bursitis
3. Achilles tendinopathy and some other conditions also can cause heel pain.^(1,2)

- **Plantar fasciitis**-It is a major cause of heel pain. It is mainly seen in occupations which are included prolong standing or walking. It can worsen when repeated

stresses are given to them leading to worsening of heel pain. It is a result of inflammation of plantar aponeurosis at the point of its attachment to calcaneal tuberosity. In this condition early morning pain is common.^(1,9) Tightness and pain is experience in early morning and pain improves after walking and doing some activities. Self stretching can improve the pain but worsening can cause calcaneal spur.

- **Retrocalcaneal bursitis**-Retrocalcaneal bursa is situated behind the Achilles tendon where it is attaches to heel bone. When this bursa is inflamed then it is called as retrocalcaneal bursitis. It causes swelling around the back of heel area, pain and stiffness, loss of movements, redness and warmth of back of heel. It is also caused by overuse of heel and ankle area.^(3,8)

- **Achilles tendinopathy**-It is a condition which can occur because of greater amount of strain produce on Achilles tendon and it can be due to old or poor quality footwear. And it also can occur because of walking on uneven surfaces. This condition also produces morning stiffness, tenderness of Achilles tendon to touch or gently squeezed. Audible clicking when ankle is moved

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is also seen sometimes.⁽¹⁰⁾

All these conditions can occur due to occupation related to foot overuse such as agricultural industry prolong standing.

Major population in India work for agricultural industry but this is most hazardous industry as it requires various processes that can lead to injuries. In agricultural industry there are more chances of foot and ankle injuries because of nature of their work.^(4,5,6) As farmers have to work on uneven lands and slippery areas, sometimes on larger fields and hard surfaces.⁽¹²⁾ It is suggested in studies that frequent deep dorsiflexion movements can cause retrocalcaneal bursitis and farmers are doing frequent foot dorsiflexion in altered way, because of that they can suffer from such conditions.^(1,7) And because of barefoot walking, standing for long time, walking on uneven surfaces they are also more likely to suffer from heel pain.^(10,11)

Method

This study is cross sectional study undertaken to find out prevalence of heel pain in farmers and to create awareness about it in them. Farmers with age group of 30 to 60, both males and females were included. Farmers already undergone from foot and ankle related injuries and those who are unwilling to participate are excluded. Written consent of the patient was taken. The study is ethically approved. The Foot Pain Questionnaire is used as study tool.

The sample size was calculated by foot/leg pain taken at 50%(as a study has shown as prevalence of leg/foot pain in rice farmers is 48.7% therefore 50% was taken into consideration for heel pain. Hence for calculation of sample size $p=50\%$ and $q=100-p=50\%$ sample size $n=4pq/L^2$ therefore $n=100$. The simple random sampling is used to select the subjects for study and it is conducted in and around Karad Taluka.

Result

The study was conducted among 100 participants in Karad of Satara District in Maharashtra. 44 females and 56 males participated among which 30 farmers belong to age group of 30 to 40 years, 50 farmers to 41 to 50 years and 20 farmers are of 51 to 60 years.

According to this study it was found that 34(68%) subjects have pain since last 2 years, 9(18%) have pain since 2-4 years, 4(8%) have pain since 4-6 years and

3(6%) have pain since 6-8 years. Side of the pain was also asked and it was found that 12(24%) subjects have pain in only right side, 15(30%) subjects have pain in only left side and 23(46%) subjects having pain in both the sides. Level of pain is measured by giving the subjects a 10 point numerical scale in which 0 is no pain and 10 is absolutely intolerable pain. 34(68%) subjects rated their pain in between 3-6 that is moderate pain and 16(32%) subject have pain above 6 that is severe pain. Standing is affected in 40(80%) subjects and both sitting and standing positions were affected in 10(20%).

3(6%) subjects have improvement from their pain but 25(50%) subjects worsened their pain and pain remained same in 22(44%) subjects. Standing and walking are the most affected activities in which standing was affected in 26(52%) subjects and walking is affected in 24(48%) subjects. Different remedies were used by the subjects to reduce the pain such as 35(53%) subjects used rest as a treatment, 3(4%) subjects bought new shoes, 15(23%) subjects applied ice, 8(12%) took injections and 5(8%) took anti-inflammatory medications. 24(24%) subjects show positive results for heel pain and 76(76%) does not have pain.

Farmers also face some major issues which are the main cause of difficulty in daily work and those are represented in following graph with further details.

Issues of farmers and their distribution

Graph 1: According to the graph above 50(60%) subjects have pain as a main problem for approaching the doctor and in those subjects 26(52%) subjects had pain in hindfoot, 10(20%) had pain in midfoot and 14(28%) subjects had pain in ankle. 12(14%) have uncomfortable shoe wear as a main issue, 2(2%) have instability, 17(20%) have sprain and 3(4%) have recent injuries.

Based on this study it was found that heel pain in farmers is statistically significant ($p < 0.0001$).

DISCUSSION

The aim of this study was to find out the prevalence of heel pain in farmers. The farmers with age group of 30-60 years, both males and females and participants those are willing to participate are included. The patients with red and yellow flags, Farmers already undergone from foot and ankle related surgeries were excluded.

Study was conducted with 100 subjects in and

around Karad. Subjects were selected as per inclusion and exclusion criteria and written consent was taken. Both males(56) and females(44) subjects were included for study. Subjects were explained about procedure of study and written consent was taken from them and they were also asked if they suffered any musculoskeletal problems. Then they were assessed with help of foot pain questionnaire, survey was done according to results obtained the conclusion was given.

Farming Industry require a lot of work which is done bare foot in our country. This is the major cause of ankle and foot related injuries. Farmers are prone to develop these conditions as they have to work on uneven fields, slippery surfaces and hard grass.

Work in farms put a lot of stress to ankle and foot structures and it leads to injuries like ankle sprains, instability, heel pain and sometimes deformity. Many studies are conducted for overall musculoskeletal injuries in farmers and studies related to instabilities and malalignments. But very few studies are conducted only in heel related problems.

In previous studies are carried out to see prevalence of and characteristics of musculoskeletal pain in Korean farmers by **David Min**, the purpose of this study was to investigate the prevalence and characteristics of musculoskeletal pain in results it shows that 43.3% farmers has leg or foot related condition.

So in farmers there may be significant heel pain, that's why it is necessary to find prevalence of heel pain in farmers. This study is even help to create awareness amongst farmers about heel pain and its risk factors which can affect their work and benefit for betterment of their lifestyle.

In this study we came to know that females are primarily affected by foot conditions. Heel pain was also found statistically significant in present study. It was shown that 24% subjects are having heel pain and they are in the age group of 41-51 years.

Conclusion

After analysing the data, it was found that there is a prevalence of heel pain in farmers. 24% of subjects are having heel pain and 76% of subjects do not have heel pain. 46 % of males and 54% of females have heel pain. 29% pain distribution in 30 to 40 yrs population, 54% pain distribution in 41 to 50 yrs population,17% pain

distribution in 51 to 60 yrs population is seen.

Conflict of Interest: There were no conflicts of interest in this study.

Ethical Clearance: Ethical clearance was taken from institutional committee of Krishna Institute of Medical Sciences, Deemed to be University, Karad.

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