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Prevalence and recurrence of hamstring injuries among professional soccer players in Petaling Jaya City Football Club (FC)

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ABSTRACT

Background: There is considerable evidence that hamstring injuries are moderate among professional soccer players and that the rates continue to remain elevated when these professional soccer players play soccer avidly. This study aims to determine the prevalence and recurrence of hamstring injuries among professional soccer players in Petaling Jaya City FC.

Methods: A simple random consecutive sampling research data is the past medical record of professional soccer players from Petaling Jaya City FC Physiology Centre. They suffer from hamstring injuries directly taken from Petaling Jaya City FC. Data were analyzed using SPSS version 23 for Windows.

Results: There are 30 players in Petaling Jaya City FC and 5 of them had a developing Hamstring Injury case. Out of 5 players suffering from Hamstring Injury, 2 of them had a recurrence of Hamstring Injury and all of them were males (100.00%). Most of the soccer players have played for 10-12 years (60.00%).

Conclusion: The risk of getting hamstring injury increases as the age increases because of the hip flexor and the years of playing soccer excessively. In conclusion, it is safe to say that as each player's age increases, the more the possibility of the player to have a hamstring injury.

Keywords: Hamstring Injury, Soccer Player, Petaling Jaya City FC.
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INTRODUCTION

Hamstrings are specifically known to include the Biceps Femoris, Semi-tendinous, Semimembranosus, and a rear part of the adductor Magnus due to its function.[1] When the hamstrings are formed in a group, the hamstrings traverse both the hip joint and the knee joint.[1] This is important in both the extension of the hip and flexion of the knee. It is a norm for sportsmen, especially professional soccer players, to have a 'pulled' or 'strained' hamstring injury, but a complete rupture occurs less frequently.[2]

Hamstring injury is a common athletic injury that is considered located at one of the prominent tendons at the knee's back.[3] A hamstring injury is usually caused by a rapid, extensive contraction or a strong stretch of the hamstring muscle, which causes excessive mechanical stress.[3]

Due to the nature of the game of soccer, hamstring injuries are just prevalent among professional soccer players.[4] The reason behind it is because each player is rapidly changing phase throughout the soccer match.[4] When a player is sprinting, it causes a lot of tension on the muscle when most hamstring injuries occur.[4] When the muscle is stretched beyond its capacity, it results in tears to the tissue. These tears are typically classified as hamstring injuries and it varies in degrees of severity, measured from Grade 1 to Grade 3.[5] The degree of severity determines whether the specific player needs a surgical approach or a conservative approach.[5]

There are several grades of severity for hamstring injuries classified into 3 grades that are Grade 1, Grade 2 and Grade 3.[6] A Grade 1 hamstring injury is known as a mild hamstring strain that will generally cause sudden pain and delicacy at the thigh's back. It may be painful and difficult to move the leg, but the muscle's strength would not be affected.[6] For a Grade 2 hamstring injury, it is known as a partial hamstring tear which is more painful and delicate. In some cases, there may also be swelling and bruising that can occur at the back of the thigh and the strength of the leg will also decrease. The Grade 3 hamstring injury is commonly known as the severe hamstring tear, which is very painful, delicate, swollen, and bruised. A "popping" sensation usually occurs at the time of injury and the affected leg will not be able to be used.[7]

In order to have an accurate diagnosis of the severity of the hamstring injury, a 'Patient interview' should be organized first. The clinician assigned will ask the patient about the chronology of the injury, the pattern of pain, and does the injury affects the daily lifestyle and training

during a professional soccer game.[8] After an interview with the patient, a physical examination will be conducted.[8] The clinician will use this examination to determine the location and severity of the injury. A clinician will generally use their hands to touch and find where the injury is located because a hamstring injury will often cause swelling at the injured location.[8] However, the precise location of the injury would be difficult to determine without advanced imaging. The physician might ask the patient to perform various movements so that the physician can evaluate the strength and range of motion of the injured hamstring.[9] Normally, a side-to-side asymmetry motion with hip flexion and knee straight would be told to perform because the resisted knee flexion is often limited by pain and weakness. Testing will be done on both legs to study the comparison of the uninjured leg and the injured leg. Occasionally, the physician will conduct a musculoskeletal and neurologic examination to treat the sciatic nerve entrapped in healing scar tissue, causing sciatica nerve injury.[9]

Early treatment is essential to treat a professional athlete who is suffering from a hamstring injury. The goal is to reduce pain, swelling and to make sure the athlete recovers as soon as possible. For a light hamstring injury, it is advised to take a break from rough activities to all the injury to heal and use crutches to walk by avoiding putting the entire body weight on an injured leg. Based on those mentioned above, this study aims to evaluate the prevalence and recurrence of hamstring injuries among professional soccer players in Petaling Jaya City Football Club (FC).

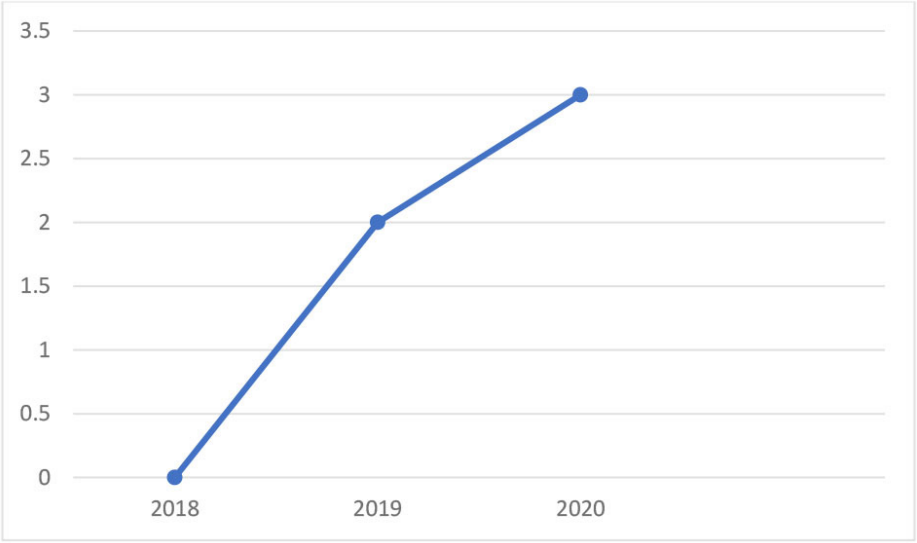

Figure 1. The prevalence and recurrence of hamstring injuries among professional soccer player in Petaling Jaya City FC

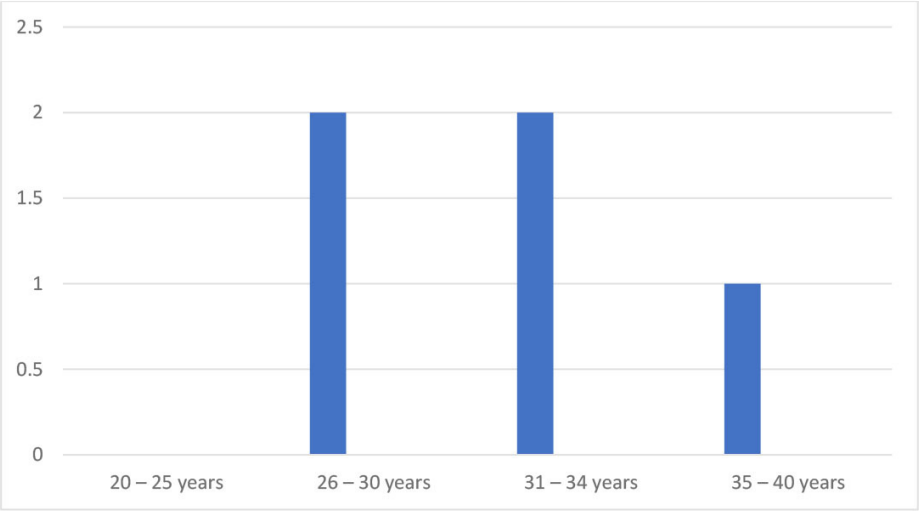

Figure 2. The prevalence and recurrence of hamstring injuries among professional soccer players in Petaling Jaya City FC based on past medical injuries and age.

METHODS

This study is a descriptive cross-sectional study to determine the prevalence and recurrence of hamstring injuries among professional soccer players. A cross-sectional study is a type of research that the measurement and observation of the variable are done only at a time.

This research was conducted at the Petaling Jaya City FC training ground and the data was collected during the data collection period during the year 2018-2020 continuously, continued with data analysis. The target population of this research is professional soccer players in Petaling Jaya City FC. The accessible population of this research is the professional soccer players of Petaling Jaya City FC. The inclusion criteria are Professional soccer players in Petaling Jaya City FC who has a hamstring injury in the 2018-2020 season and exclusion criteria Professional soccer players in Petaling Jaya City FC who do not have hamstring injury in the 2018-2020 season will be excluded from this sample of research.

The research variables are divided into two, which are an independent variable and the dependent variable. This research's independent variables are age, gender, years of experience of playing soccer, past medical injury, and hamstring diameter. This research's dependent variable is the prevalence and recurrence of hamstring injuries among professional soccer players in Petaling Jaya City FC.

Medical records of prevalence and recurrence of hamstring injuries among professional soccer players in Petaling Jaya City FC were collected and given by Petaling Jaya City FC. It is a simple random consecutive sampling research data from

Table 1. Professional Soccer Player's characteristics in Petaling Jaya City FC based on gender and years of playing soccer.

Variable	Amount	Percentage (%)
Gender		
Male	5	100.00
Female	0	0.00
Duration of Playing Soccer (Years)		
10-12	3	60.00
13-15	1	20.00
16-18	1	20.00

the past medical record of professional soccer players who suffer from hamstring injuries directly taken from Petaling Jaya City FC. Data were analyzed using SPSS version 23 for Windows.

RESULTS

The number of players with reported Hamstring Injuries differed year on year from 2018 – 2020. In 2018, a total number of 0 cases of Hamstring Injury were recorded, representing 0.00% in percentage terms of the total players in 3 consecutive years (Figure 1). In 2019, 2 cases (6.67%) were recorded, showing an increment compared to the year before. For the year 2020, a total of 3 cases were recorded, showing an increase in hamstring injury cases from the years before and representing 10.00% of total players in the 3 years being studied in this study (Figure 1).

Based on the study, there is a close relationship between the past medical injuries and age among professional soccer players in Petaling Jaya City FC and the prevalence and recurrence of Hamstring Injuries. As each player's age increases, the more the player's possibility to have a medical injury as per the study (Figure 2). In this study, 2 of the players had suffered from a recurrence of a hamstring injury. The age of both of these players are 31 years old and 34 years old, respectively. This is because the bodyweight and hip flexor flexibility are significant independent predictors of hamstring soccer players' injury (Figure 2).

Of the 30 recorded professional soccer players from 2018 – 2020 in Petaling Jaya City FC, all of them are male cases. This is because the professional soccer players in Petaling Jaya City FC are consist of males only (Table 1). A total of 5 cases of players developing hamstring injury were recorded of male dominance while 0 were of the female gender. These corresponded to 100.00% male cases and 0.00% female cases (Table 1).

All of the professional soccer players have a range of experience in years of playing soccer. This is because the professional soccer players in Petaling Jaya City FC consist of soccer players playing soccer in various clubs before playing for Petaling Jaya City FC (Table 1). Most of them have played soccer for 10-12 years (60.00%) (Table 1).

DISCUSSION

In this study, hamstring injuries among professional soccer players in Petaling Jaya City FC can also be determined based on the specific players' past medical injuries. There were few cases recorded with past medical injuries from the previous studies related to the hamstring injuries on soccer players.[10-13] The outcomes of the findings are that among 5 of the players with hamstring injuries, 2 of them had a hamstring injury's recurrence before. Other than the recurrence of a hamstring injury, Anterior Cruciate Ligament injury was also contributed to the sport injuries.[14]

Based on the study, there is a close relationship between the past medical injuries and age among professional soccer players in Petaling Jaya City FC and the prevalence and recurrence of Hamstring Injuries. As each player's age increases, the more the possibility of the player to have a medical injury as per the study. In this study, 2 of the players had suffered from a recurrence of a hamstring injury. The age of both of these players are 31 years old and 34 years old, respectively. This is because the bodyweight and hip flexor flexibility are significant independent predictors of hamstring soccer players' injury according to the previous studies.[15-17]

Of the 30 recorded soccer players in Petaling Jaya City FC from 2018 – 2020, all the soccer players were treated according to Petaling Jaya City FC's treatment module. Out of the 30 soccer players, 5 players have experienced a Hamstring Injury and 2 out of 5 of them had a recurrence of Hamstring Injury. Most of the treatment was given at the Orthopedic Sports Surgeon, HUKM Specialist Centre. Ultrasound and MRI could be used to determine the Grade of injury, then treat the injury conservatively with a pain killer and continuous rehabilitation with the team physiotherapist.[18,19] They are advised to try the RICE treatment for individual self-care treatment, which is Rest, Ice, Compression, and Elevation.[20] Rest is essential to a professional soccer player who is suffering from a hamstring injury because it will allow the damaged tissues to repair.[20]

CONCLUSION

In conclusion, total players with Hamstring Injuries that fulfill or are within the study's inclusion and exclusion criteria from the 2018-2020 season a total of 30 players were included in this study from Petaling Jaya City FC records. Among the players, it was found that the number of players with Hamstring Injury in Petaling Jaya City FC is 5 players and out of 5 players, 2 of them have a recurrence of Hamstring Injuries. The outcomes of the findings are that among 5 of the players with hamstring injuries, 2 of them had a hamstring injury's recurrence. Other than the recurrence of a hamstring injury, 2 other players also had suffered from an Anterior Cruciate Ligament injury before.

CONFLICT OF INTEREST

All authors have no conflict of interest to declare.

ETHICS CONSIDERATION

Ethics approval has been obtained from the Ethics Committee, Faculty of Medicine, Universitas Udayana, Bali, Indonesia, prior to the study being conducted.

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AUTHOR CONTRIBUTION

All authors have contributed to all processes in this research, including preparation, data gathering, analysis, drafting, and approval to publish this manuscript.

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