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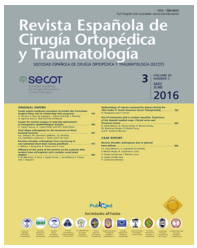

ORIGINAL ARTICLE

Experience using the 'Shetty test' for initial foot and ankle fracture screening in the Emergency Department☆

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KEYWORDS
Ankle sprain;
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Abstract
Objective: The indiscriminate practice of radiographs for foot and ankle injuries is not justified, and numerous studies have corroborated the usefulness of clinical screening tests such as the Ottawa Ankle Rules. The aim of our study is to clinically validate the so-called Shetty test in our area.
Material and method: A cross-sectional observational study by applying the Shetty test to patients seen in the emergency department.
Results: We enrolled 100 patients with an average age of 39.25 years (16–86 years). The Shetty test was positive on 14 occasions. Subsequent radiography revealed a fracture in 10 cases: four were false-positives. The test was negative in the remaining 86 patients and radiography confirmed the absence of fracture (with sensitivity of 100% and specificity of 95.56%, positive predictive value of 71.40%, and negative predictive value of 100%).
Conclusions: The Shetty test is a valid clinical screening tool to decide whether simple radiography is indicated for foot and ankle injuries. It is a simple, quick and reproducible test.

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PALABRAS CLAVE
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Reglas del tobillo de Ottawa;
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Pie

Experiencia con la aplicación del test de Shetty para el despistaje inicial de fracturas del pie y tobillo en el área de Urgencias

Resumen
Objetivo: La práctica indiscriminada de radiografías en los traumatismos de pie y tobillo no está justificada y numerosos estudios han corroborado la utilidad de los tests de despistaje clínicos como las reglas del tobillo de Ottawa. El objetivo de nuestro estudio es validar clínicamente el denominado test de Shetty.
Material y método: Estudio transversal observacional mediante aplicación del test de Shetty a pacientes atendidos en el Servicio de Urgencias.
Resultados: Seleccionamos a 100 pacientes con una edad media de 39,25 años (16–86). Tras efectuar el test de Shetty, la prueba fue positiva en 14 ocasiones. Realizando la radiografía posterior, se constató que en 10 casos había fractura y que 4 eran falsos positivos. Por otro lado, en los 86 pacientes restantes el test fue negativo y la radiografía confirmó la ausencia de fractura (sensibilidad del 100% y una especificidad del 95,56%, así como un valour predictivo positivo del 71,40% y un valour predictivo negativo del 100%).
Conclusiones: El test de Shetty es una herramienta de despistaje clínico válida a la hora de tomar decisiones sobre la indicación de la radiografía simple en lesiones del pie y tobillo. Además, es una prueba sencilla, rápida y reproducible.

Introduction

Injuries secondary to direct or indirect trauma to the foot or ankle are very common in emergency departments in our environment, as both inpatients and outpatients, and in primary-care consultations.[1–3] They represent almost 15% of total emergencies and up to 60% of trauma emergencies. Sprains to the external lateral ligament of the ankle is the most common acute trauma injury.[3] Although in most cases these are banal injuries (ligamentous, capsular injuries or simple contusions) and clinically relevant fractures are only diagnosed in 13% of cases, it is a routine practice to perform indiscriminate radiography, most often without any objective criteria. This phenomenon is explained by various factors: long waiting times in the very overburdened emergency departments, at the request of the patient himself or herself, failing to comply with the established protocols or guidelines or noncompliance with those already in existence and, of course, so-called defensive medicine, for medical–legal reasons.[4] These facts are just as clear in daily clinical practice where many hospitals perform simple X-rays before the appropriate physical examination.[5]

With this in mind, many studies have demonstrated that clinical screening tools can be used to drastically reduce the indication for radiography, with considerable saving of economical resources and time, as well as less ionising radiation to our patients. One such tool is the Ottawa Ankle Rules (OAR), designed by Canadian researchers led by Stiell in 1992,[6] established as one of the most used for this purpose, and currently used in many emergency services worldwide.[5–9] However, these rules require the collaboration of the patients, because they require them to walk with a probable foot or ankle fracture, and therefore they often cannot be carried out at the time of the acute trauma due to the pain experienced by the patient. In addition, we should not forget that the Rules imply a thorough examination, targeting certain anatomical points: all of which increases the physical examination times for each patient.

In this regard, Shetty et al.[10] published a novel and simple test in 2013, seeking to simplify the OAR method: the authors themselves validated this application in fracture screening with a negative predictive value of 100%.

The aim of our paper is to demonstrate the application of the Shetty test as a clinical screening test for fractures of the foot or ankle in patients attended as emergencies in a tertiary level hospital.

Methods

An observational, cross-sectional study of 100 patients attended in our hospital's emergency department between March 2016 and March 2017.

The *criteria for inclusion* in this study were:

- Direct or indirect trauma to the foot or ankle.
- Of less than 6 h onset.
- Absence of previous assessment.
- Collaboration of the patient.

The following *exclusion criteria* were established that might falsify the results of our test and even make it difficult to perform:

- Previous foot or ankle fracture.
- Multiple trauma or multiple contusions.
- Concomitant fracture in lower limbs or pelvis that would affect performing the test.
- Sensitivity or mobility disorders.
- Mental disorders.