
Evaluating Low Back Pain Patients for Prolapsed Intervertebral Disc in a Kenyan Teaching Hospital

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Abstract

Background

Accurate evaluation of low back pain is essential for its rational management. The extent of use of clinical and imaging findings in identification of prolapsed intervertebral disk varies between centers. In Kenya, the diagnostic procedure is obscure.

Objective

To assess the evaluation of low back pain patients for prolapsed intervertebral disk at Kenyatta National Hospital, a teaching and referral hospital in Kenya.

Study Design

A retrospective chart study

Patients and Methods

Historical, physical and imaging findings of patients who presented with

low back pain and subsequently diagnosed with prolapsed intervertebral disk between Jan 1997 and December 2007 were evaluated.

Results

Of the six hundred and three patients (267 males, 336 females) who were evaluated, risk factors were recorded in 39.5% patients, 35.3% patients had sciatica while straight leg raising test was performed in 52.2% patients. Investigations performed in these patients included plain roentograms (38.5%), CT scan (9.1%) and MRI (44.1%).

Conclusion

The evaluation of low back pain for prolapsed intervertebral disk was incomplete. History of sciatica, SLRT, crossed SLRT and MRI use are recommended for routine evaluation of low back pain for PID.

Introduction

Evaluation of low back pain for prolapsed intervertebral disk (PID) is based on history, physical findings and imaging examination such as Computerized Tomography (CT) scan or Magnetic Resonance Imaging (MRI). In patients with recurrent low back pain, reflex sciatica, striking tenderness on spinal processes or beside vertebrae, possible knocking pain transmitted to lower limbs and positive straight leg raising test are hallmark findings (1, 2). Ergonomic factors, age, familial predisposition, trauma, hypertension and cigarette smoking are implicated risk factors (3, 4) but their contribution is often undermined in patients' history. The straight leg raising test (SLRT) is not only diagnostic, but is also prognostic in evaluating patients with back pain for possible PID (2, 5). MRI is the standard radiological test for diagnosis of a herniated disk. Its use vis-à-vis CT scan, however, varies between centers (6). In spite of their value and need for consistent recording, the extent of use of clinical and MRI findings in accurate diagnosis of PID in a Kenyan setting is not documented. The study therefore aimed at evaluating the diagnostic protocol of PID among low back pain patients at Kenyatta National Hospital.

Patients and Methods

Files of patients with entry and exit diagnosis of low back pain and PID respectively seen at Kenyatta National Hospital from January 1997 to December 2007 were retrieved from the records department. Ethical approval was obtained from Kenyatta National Hospital/University of Nairobi – Ethics and Research Committee (KNH/UON-ERC). Biodata, history of presenting complaints, risk and co-morbid factors, physical findings and imaging methods were recorded. Files with incomplete documentation were excluded.

Data collected were analyzed using SPSS® version 16.0 of Windows®. Tables and histograms were used to illustrate the findings.

Results

Six hundred and three patient files with low back pain were evaluated. There were 267 (44.3%) males and 336 (55.7%) females. The onset of pain was sudden or insidious in 15% and 49% of patients respectively. Risk/co-morbid factors were recorded in 238 (39.5%) of the cases. Of these one hundred and fifty eight (66.4%) were due to trauma, while 80 (33.6%) were associated

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Straight leg raising test	N	Percentage
Negative	163	27.0
Positive right	38	6.3
Positive left	29	4.8
Bilateral positive	35	14.1
Not done	288	47.8
TOTAL	603	100

Table 1: The Straight Leg Raising Test

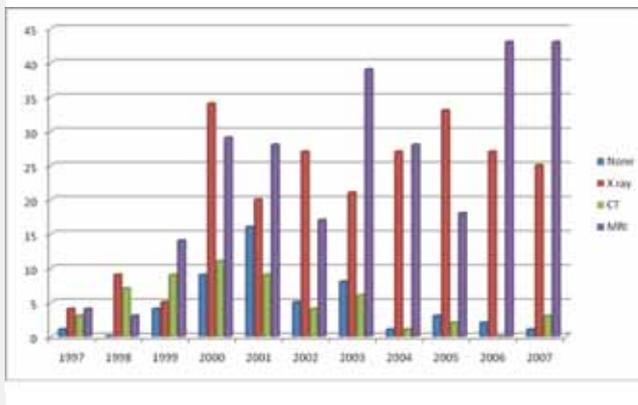


Figure 1: Choice of investigation methods over eleven years

with non traumatic co-morbidities. In the majority (60.5%) of the patients, risk/co-morbid factors were not recorded. In 47.8% of the patients, the clinicians did not document performing the straight leg raising test. Where performed, the test was negative in 61.5% of cases (table 1).

The spectrum of radiological investigations ordered in these patients included MRI (44.1%), lumbosacral X-ray (38.5%) and CT scan (9.1%). In 50 patients (8.3%) no imaging test was done. The lumbosacral X ray was consistently requested throughout the period while the MRI services were popular in the recent years (Figure 1).

Most (82%) patients with sciatica had MRI features consistent with prolapsed intervertebral disk.

Discussion

Prolapsed intervertebral disk is diagnosed on history of back pain, sciatica, positive straight leg raising test and positive imaging finding consistent with prolapsed intervertebral disk (7). In the present study, 37% of patients

had sciatica while 21% had a positive SLRT. Risk/co-morbid factors were recorded in 39.5% of the patients. Family history, young age, male gender, ergonomic environmental factors, trauma and cigarette smoking have been associated with PID (3, 4). This calls for detailed history of low back pain especially family predisposition and predisposing factors.

Two hundred and twenty two (47.8%) of the patients in the present study did not have the SLRT done. In a meta-analysis from 1965 to 1994 Vroomen et al found that pain distribution and the Lasegue test (SLRT) seemed to be the only useful clinical item in the diagnosis of PID (7). The pooled sensitivity and specificity values of the Lasegue test are 89% and 52%, respectively (7, 8). Further, SLR has utility as a screen of lumbar spine stability, and can assess control of lumbar rotational movements (9) and when used with imaging, it ameliorates accuracy (10). Another significant observation of the present study is that while the crossed straight leg raising test has a relative higher specificity of 84% (7), it was not performed in any of the patients. Accordingly, it is probable that accuracy of clinical diagnosis is often undermined in patients at KNH and irrational treatment instituted.

While MRI is the gold standard diagnostic test for prolapsed disk worldwide (7, 11), it is used in less than half of our patients. This could be attributed to high cost and low availability of this useful tool. Although a few patients had disc prolapse or herniation with a non-degenerated disc, there is a relationship between the presence of disc degeneration and prolapse or herniation on MRI (11). Unfortunately, MRI is so sensitive that frequently it over diagnoses PID (12).

Plain X-ray was done in 38.5% of all the patients. The consensus based on guidelines issued by the Royal College of Radiologists, however, is that plain lumbar spine X-rays are not indicated routinely in cases of possible PID. In fact during conservative management, there is no justification for it in the absence of other indications (12). Its use in KNH should therefore be reduced. Observations of the current study reveal that CT scan was ordered in less than 10% of the patients. In many places, because of its wider availability, lower cost, patient acceptability and effectiveness CT scan is the investigation of choice (13). It is carried out in most places especially where MRI may not be done due to non availability, high cost, claustrophobia on the part of the patient or contraindication due to metal implants (6). Further the

use of CT is of considerable value in determining the size, position and volume of sequestration and extent of excavation of spinal cord (14,15). Accordingly, greater use of this imaging modality may reduce the cost and increase diagnostic rate at KNH.

In conclusion, the evaluation of low back pain for prolapsed intervertebral disk at Kenyatta National Hospital is incomplete; the history of risk factors is not always taken, and the straight leg raising test, magnetic resonance imaging or computerized tomography scans are not routinely done. History of sciatica, SLRT, crossed SLRT and MRI use are recommended in evaluation of low back pain for PID.

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