Sexual Function Impairment After High Energy Pelvic Fractures: Evidence Today

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Purpose: Sexual dysfunction has been associated with pelvic fractures, especially in patients with concomitant urethral injuries. A critical review of the existing literature was performed focusing on the reported definitions of sexual dysfunction, its reported incidence, the presence of related risk factors, the methods of assessing sexual function, the timing of this assessment and its management.

Materials and Methods: The PubMed® search engine was used in July 2010 to retrieve articles using the terms "pelvic fracture" and "sexual function" in their title or abstract, published in the English language, from 1989 onward. The references of the selected publications were also evaluated for potential relevant studies according to set selection criteria.

Results: Based on 23 original articles the data of 1,462 patients, with a mean age of 37.7 years (range 15 to 92), were analyzed. The overall mean reported incidence of sexual dysfunction was 35.9% in men and 39.6% in women. Various methods were applied for the evaluation of sexual dysfunction, and were questionnaire based in 22 of the 23 studies. Important factors associated with sexual dysfunction were age, pelvic fracture pattern, presence of urogenital injury and injury severity score.

Conclusions: Male and female patients were equally affected by sexual dysfunction following pelvic blunt trauma. Limited consensus exists in the definition of sexual dysfunction, the methods and timing of assessment, as well as its management. The existing literature offers limited evidence regarding sexual dysfunction in females, as for both genders in the absence of urogenital initial trauma.

Key Words: pelvis; wounds and injuries; sexual dysfunctions, physiological; erectile dysfunction

Abbreviations and Acronyms

BSFI = brief sexual function index

FSFI = female sexual function index

IIEF = International Index of Erectile Function

ISS = injury severity score based on Abbreviated Injury Scale 2005

PFX = pelvic fractures

Submitted for publication August 17, 2010.

Supplementary material for this article can be obtained at http://www.leeds.ac.uk/medicine/intercalated/items/Harvey-Kelly.pdf.

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Pelvic fractures are relatively rare injuries occurring in 20 to 37/100,000 of the population. However, in the polytrauma setting the prevalence is high, reaching more than 20%.[1–3] Due to the improved understanding of the physiological response to trauma, and the continuous advances in diagnostics and critical care medicine 81% to 90% of patients with severe pelvic injuries now survive.[2] Consequently chronic complications of traumatic pelvic fractures are becoming more apparent and relevant in a large number of injured patients.[3]

Pelvic fractures are usually the result of high energy trauma.[3–5] Due to this trauma and the intimate rela-

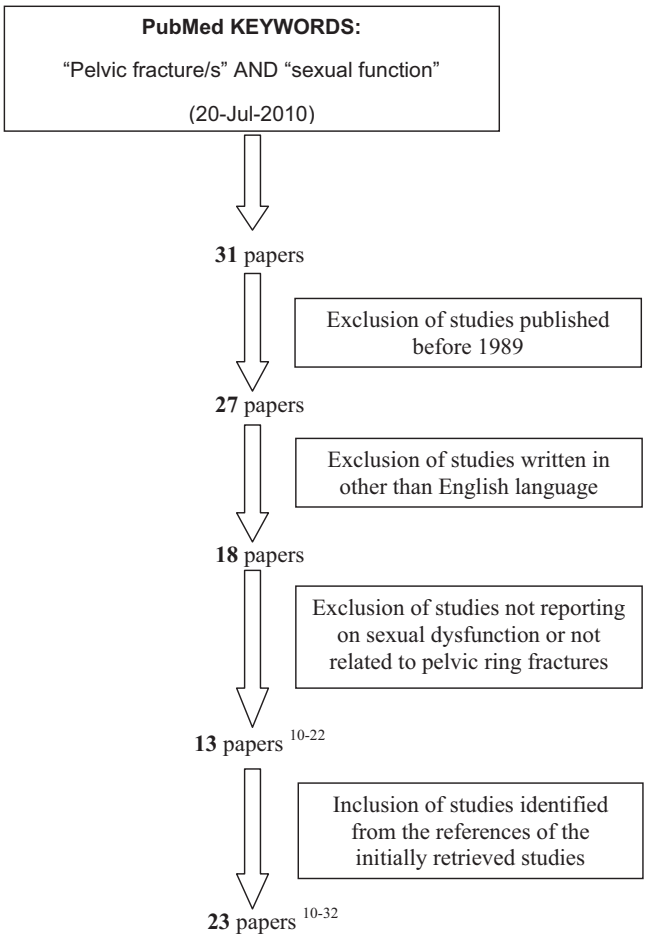
0022-5347/11/1856-2027/0
THE JOURNAL OF UROLOGY®

Vol. 185, 2027-2034, June 2011
Printed in U.S.A.
DOI:10.1016/j.juro.2011.01.076

tionship of the pelvic ring to the surrounding soft tissue organs, concomitant injuries to local structures and associated nonpelvic trauma are common.[5] The genitourinary tract is represented at high rates (11% to 30%), including bladder ruptures, injuries to the bladder neck and urethral injuries.[6] Bladder rupture occurs in 5% to 16% of all pelvic fractures, while urethral injury occurs in approximately 10% of blunt pelvic trauma.[7] The reported ratio of urethral injuries in male and female patients is 28:1, which is mostly attributed to anatomical differences between the genders.[6]

Pelvic fractures and associated genitourinary tract injuries have been linked to sexual dysfunction in both genders (erectile dysfunction in men, and dyspareunia, anorgasmia and incontinence in women).[7–9] Sexual dysfunction following pelvic trauma in the absence of lower urogenital tract injury has not been sufficiently investigated to date.

In this review we investigated the existing evidence on the impairment of sexual function after high energy pelvic fractures in male and female patients. The existing consensus was explored related to the 5 questions of 1) the definition of sexual dysfunction in the PFX related literature, 2) the reported diagnostic means and established methods of assessment, 3) the incidence of sexual dysfunction following pelvic fractures, 4) the time frame of followup assessment, and 5) the reported methods of management and outcome.



Flowchart of followed study retrieval process of review via PubMed.

MATERIALS AND METHODS

A review of the English literature via PubMed was performed to identify related articles. The terms "pelvic fracture" AND "sexual function" were inserted as search keywords on July 20, 2010. All retrieved abstracts were reviewed by 2 of the authors (KFHK, NKK), and classified as relevant or irrelevant according to the inclusion/exclusion criteria of English/other languages, publication date after/before 1989, pelvic ring fractures/isolated acetabular fractures, adults/children (younger than 14 years old), sexual function reported/not reported and original studies/reviews-editorials-expert opinion-letters to editors. If there was a disagreement between the reviewers following the initial abstract assessment, the full article was retrieved and assessed. The references of the retrieved articles were also evaluated to identify further appropriate studies to be included in the review. A flowchart of the study selection process is presented in the figure.

Information was retrieved from each publication and inserted into an electronic format (Microsoft® Access for Windows) including patient demographics, ISS,[9] time of followup, type of pelvic fracture, associated urogenital injuries, definition of sexual dysfunction, incidence of sexual dysfunction, method of sexual function assessment, type of investigations requested, surgical reconstruction/repair and reported final outcome related to sexual function. All collected data and resulting conclusions were grouped by gender to comprehensively structure our review and analysis. Descriptive statistical methods were used as possible for explanatory clarity purposes of the presented data.

RESULTS

The electronic search yielded 30 citations, of which 13 met the study inclusion criteria.[10–22] An additional 10 eligible studies were found through a detailed search of the references of the electronically retrieved studies.[23–32] Patient demographics, definition of sexual dysfunction used, the time and method of sexual function assessment, and the incidence of sexual dysfunction are presented in tables 1 and 2.

A total of 1,462 patients with a mean age of 37.7 years (range 15 to 92) were included in this analysis.[10–32] Studies specifying gender referred to 497 males[10,14,15,17,19,23,25–29,32] and 368 females.[11,13,15,16,18,31] Studies presenting results accumulatively for both genders (6 studies with 597 cases) are summarized elsewhere. Six studies reported on ISS with a mean score of 21 (range 17 to 27).[11–13,17,20,21] Overall the mean reported incidence of sexual dysfunction was 34.3% (range 14 to 72).[10–32]