



A systematic review and meta-analysis of quality of life outcomes after radical cystectomy for bladder cancer



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ABSTRACT

Background: Radical cystectomy and urinary diversion is the treatment of choice for invasive bladder cancer. Quality of life (QOL) is an important outcome of surgery. This review compares the QOL after continent and incontinent urinary diversion in radical cystectomy for patients with primary invasive bladder cancer.

Methods: A systematic review and meta-analysis of clinical studies published after January 2000 was performed according to the PRISMA guidelines. Quality appraisal and data tabulation were performed using pre-determined forms. Data were synthesised by narrative review and random-effects meta-analysis using standardized response means. Heterogeneity and bias was assessed by τ^2 and I^2 values and Funnel plots.

Results: Twenty-nine studies (3754 patients) were included for review. Pooled post-operative FACT and SF-36 scores showed no difference in overall QOL between continent and incontinent diversion ($p = 0.31$). Subgroup analysis demonstrated greater improvement in physical health for incontinent ($p = 0.002$) compared to continent diversions, but no differences in mental health ($p = 0.35$) and social health ($p = 0.81$). Qualitative analysis showed patients with neobladder had superior emotional function and body image compared to cutaneous diversion. QOL may improve to similar or better levels compared to baseline after 1 year, but data remains scarce. Patients report poor urinary and sexual function after surgery compared the general population. Long-term QOL is unclear. Levels of heterogeneity and bias were low.

Conclusions: QOL after radical cystectomy is comparable after either continent or incontinent urinary diversion. Post-operative QOL may improve, but urinary and sexual dysfunction remains inferior to the general population. Patient choice is key to selection of reconstruction method.

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1. Introduction

Bladder cancer is the second most common genitourinary cancer and the tenth most common cancer diagnosed worldwide with

430,000 new cases in 2012 [1,2]. The incidence of bladder cancer is projected to further increase in developing countries, due to the increase in tobacco use [3]. Transitional cell carcinomas account for more than 90% of cases with the remainder comprising of squamous cell carcinomas and adenocarcinomas [4]. The 5-year survival rate in non-invasive bladder cancer is 96%, but invasive and metastatic disease portends a poor prognosis at 34% and 4% respectively [5]. Health-related quality of life (QOL) is negatively affected by bladder cancer [6].

Radical cystectomy is a well-established treatment of muscle invasive bladder cancer (>stage T2). Since its introduction in 1887 [7], advances in surgical techniques and neoadjuvant therapies have resulted in improved perioperative mortality and overall

Abbreviations: FACT, The Functional Assessment of Cancer Therapy Scale; FACT-BL, The Functional Assessment of Cancer Therapy Scale-Bladder Cancer; FACT-G, The Functional Assessment of Cancer Therapy Scale-General; FACT-VCI, The Functional Assessment of Cancer Therapy Scale-Vanderbilt Cancer Index; QLQ-C30, European Organization for the Research and Treatment of Cancer Quality of Life Core Questionnaire; QOL, Quality of Life; SF-36, Medical Outcomes Short-Form 36.

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survival. Contemporary studies report a perioperative mortality of 2.5–3.7% [7–9], and an overall recurrence-free survival of 50–60% at 5 years [7,10] and 45–61% at 10 years [7], depending on tumour stage.

The mainstay of urinary tract reconstruction has been incontinent conduit diversion using segments of bowel [11]. However, continent diversion techniques such as cutaneous diversion and orthotopic neobladder have emerged as effective alternatives to the traditional ileal conduit [12]. It has been suggested that continent urinary reconstruction, and orthotopic neobladder in particular, significantly improves patients' QOL and self-confidence [13–16].

Patients' functional independence, social and emotional status, and body image can be significantly affected by surgery. In particular, different methods of urinary diversion may affect QOL differently. Such post-operative QOL is considered a critical outcome of surgery and provides patients and clinicians with a realistic expectation of outcomes after various methods of urinary reconstruction. However, the current literature is conflicted on the post-operative QOL outcomes.

The main objective of this review was to compare QOL differences between continent and incontinent urinary diversion and provide a guide for the likely QOL outcomes compared to baseline and reference populations.

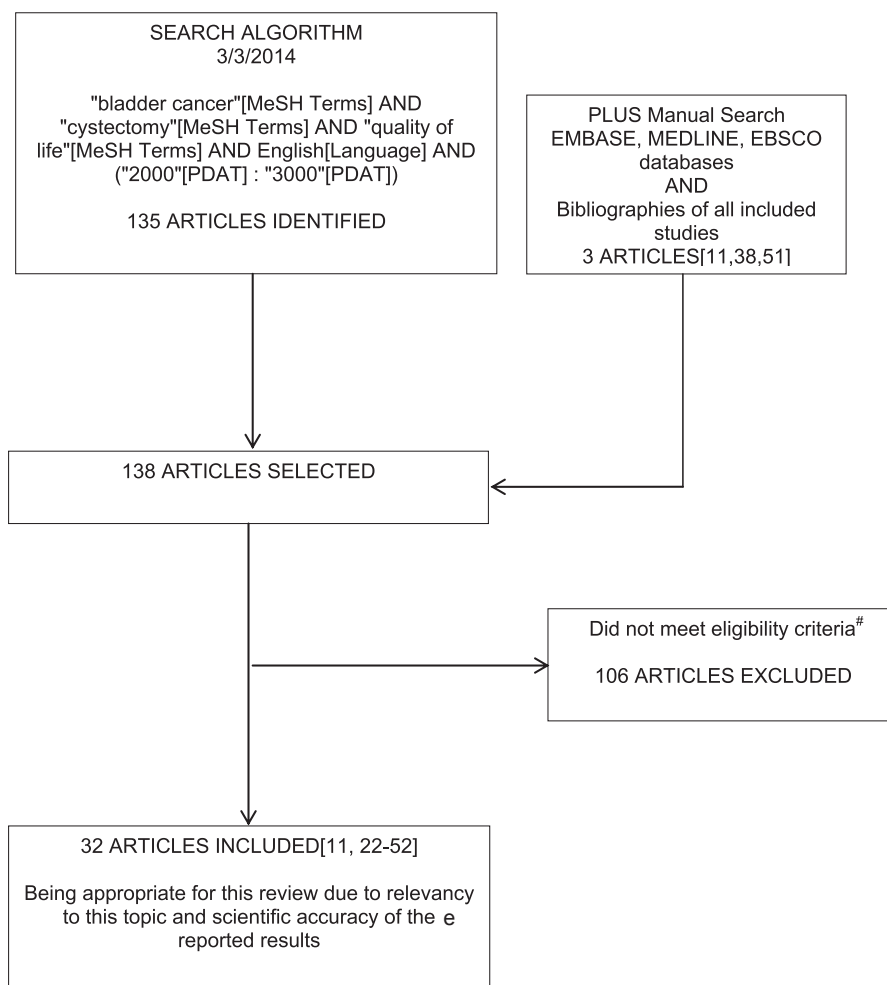
2. Evidence acquisition

The structure of this review followed the PRISMA guidelines [17].

2.1. Definition and measurement of quality of life

QOL is a “multidimensional construct that is affected by physical health, psychological health, functional status, social relationships, and personal beliefs” [18] which may be classified as disease-specific or generic.

Bladder-cancer specific QOL assesses disease-related symptoms including urinary, bowel and sexual functioning. Post-operatively, urostomy and catheter problems, continence and functional



#Eligibility criteria outlined in methods section

- Adult patients with primary invasive bladder cancer
- Underwent radical cystectomy with urinary diversion
- Disease-specific and/or generic QOL results recorded
- Original research

Fig. 1. Search algorithm.

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