Radical cystectomy in patients aged ≥75 years: an updated review of patients treated with curative and palliative intent

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OBJECTIVE

To evaluate the morbidity and mortality of radical cystectomy in a group of unselected patients aged ≥75 years who were treated with curative and palliative intent.

PATIENTS AND METHODS

We retrospectively analysed 53 patients aged 75–90 years (median 78.8 years) who had radical cystectomies between May 1994 and July 2002. The patients were divided into two groups: 46 were treated with curative intent (group A) and seven with palliative intent (group B). The indications for cystectomy in group A were recurrent and otherwise therapy-resistant bladder cancer, severe irritative voiding symptoms, and recurrent macrohaematuria. The indications in group B were advanced pelvic malignancy with severe irritative voiding symptoms, severe pain, and recurrent macrohaematuria requiring blood transfusions. Patients were categorized according to the American Society of Anesthesiologists classification, with a score of II in 28 patients, III in 21 and IV in four. Complications and mortality before, during and after surgery, and the duration of hospital stay and clinical outcome, were assessed.

RESULTS

The early mortality rate in group A was 4% (2/46); in group B two patients died after prolonged complications. The median (range) hospital stay was 28 (6–56) days, and was significantly longer in patients with complications, at a median (range) of 36 (6–70) days. The complication rates early and late after surgery in group A were 22% and 11%, respectively, and in group B, five of seven (early). The total median survival was 2 (0.33–7) years.

CONCLUSIONS

Elderly people undergoing radical cystectomy have a greater risk of perioperative morbidity and mortality, especially those with very advanced pelvic malignancies who have had cystectomy with palliative intent. The incidence of early and late complications in patients treated with curative intent is acceptable, but the hospital stay is prolonged.

KEYWORDS

radical cystectomy, curative, palliative, elderly patients, morbidity, mortality

INTRODUCTION

The elderly population of the European Union is increasing; in 1998, 60 million people were aged >65 years. The increasing longevity of the population is associated with a rise in the incidence of bladder cancer, which is a disease of the elderly [1]. In addition to its high death rate, bladder cancer is also responsible for significant morbidity, resulting from severe irritative voiding symptoms, upper urinary tract obstruction and prolonged haematuria. This is of increased concern in elderly patients when considering adequate treatment of recurrent superficial or invasive bladder cancer. Many of these patients have substantial comorbidity, e.g. congestive heart failure, chronic pulmonary obstructive disease, diabetes, and poor nutritional status. There are alternatives to radical cystectomy such as radiation therapy, repeated transurethral resection, partial cystectomy, or palliative care. Unfortunately, many older patients, especially those with advanced carcinoma, are unsuitable candidates for these conservative alternatives. Cystectomy with urinary diversion relieves symptoms and prolongs life, especially in patients with other advanced pelvic malignancies, or severe haematuria, pain and disabling voiding symptoms. Several groups have reported that properly selected elderly patients in good health can undergo radical cystectomy and urinary diversion, with results comparable to those in younger patients [2–4]. Advances in surgical procedures, anaesthesiology and postoperative care extend this opportunity to elderly patients with concomitant disease and increased anaesthetic risk [5]. In this context we evaluated retrospectively the morbidity and mortality of radical cystectomy in patients aged ≥75 years treated in one institution, with curative or palliative intent, in the last 8 years.

PATIENTS AND METHODS

We retrospectively analysed 53 patients (median age 78.8 years, range 75–90) who had a radical cystectomy between May 1994 and July 2002. The mean number of cystectomies undertaken at our hospital was 20–40 per year. The patients were divided into two groups on the basis of treatment intent; group A consisted of 46 patients treated with curative intent and group B seven treated with palliative intent. Before the procedure the patients were graded according to the American Society of Anesthesiologists (ASA) physical status classification [6]; 28 (53%) of the patients had an ASA score of II, 21 (40%) a score of III and four (7%) a score of IV (Table 1). Of these patients, 28 were men and 25 were women. In group A the indications for radical cystectomy were recurrent superficial bladder cancer resistant to intravesical topical treatment and causing

severe voiding symptoms (15 patients), and recurrent clinically organ-confined invasive bladder cancer (31). In the seven patients in group B the indications for radical cystectomy were extravesical bladder cancer and other advanced pelvic malignancies, with severe voiding symptoms, pain, macrohaematuria and the need for repeated blood transfusions (Table 2). External urinary diversion was by an ileal conduit in 46 patients and cutaneous ureterostomy in six, while a colon conduit was constructed in one.

After surgery, all patients were monitored in the intensive care unit (median 68 h) and then transferred to the regular ward. Parenteral nutrition was maintained for 5–7 days, low-dose heparinization throughout the hospital stay and antibiotic treatment for 7–11 days. Data related to the perioperative complications and the clinical course during the hospital stay were collected from hospital records. Data on the clinical outcome after discharge from the hospital were collected via questionnaires sent to the referring urologists.

Early mortality was defined as death from any cause <90 days after surgery. Morbidity included intraoperative complications, early complications (defined as any adverse event during the hospital stay or <90 days after surgery), and late complications (developing >90 days after surgery).

TABLE 1 Age and ASA scores in patients treated with curative intent (group A, 46) and palliative intent (group B, seven)

	A, age (years)			B, age (years)		
ASA	75–79	80–85	86–90	75–79	80–85	86–90
N (%)	28 (61)	13 (28)	5 (11)	5	2	0
II	18	7	2	1	0	0
III	10	6	3	1	1	0
IV	0	0	0	3	1	0

TABLE 2 Clinical (before cystectomy) and pathological tumour stages in both groups

	Tumour stage	Pathological tumour stage			
N (%)	before cystectomy	N (%)	N0	N1	N2
Group A					
Bladder cancer stage					
Cis/Tis	2 (4)	2 (4)	2	0	0
T1	13 (28)	6 (13)	4	0	2
T2a	24 (52)	10 (22)	10	0	0
T2b	6 (13)	7 (15)	6	1	0
T3a	1 (2)	5 (11)	4	0	1
T3b	–	11 (24)	2	2	7
T4a	–	4 (9)	1	2	1
T4b	–	1 (2)	0	0	1
Group B					
Cancer:					
bladder, T4a	3	3	2	0	1
cervical, T4	2	2	1	1	0
Prostate, T4	1	1	1	0	0
Rectal, T4	1	1	0	1	0

RESULTS

The median (range) duration of surgery was 300 (130–490) min, and the blood loss 500 (200–2000) mL. Thirty-three patients received blood transfusions, with a median of 2 (1–7) units. The median hospital stay was 28 (6–56) days.

In group A, cardiovascular disorders were the most common comorbidity, in 17 (37%) of the patients. Other comorbidities were diabetes mellitus in six (13%), chronic obstructive lung disease in five (11%), dementia in four (9%), obesity in three (7%), chronic kidney failure in one (2%) and chronic hepatitis in one (2%). In group B, cardiovascular disorders were also the most common comorbidity, in two of the seven patients; other comorbidities were diabetes mellitus in one, obesity in one, and chronic kidney failure in one.

In group A there were complications during surgery in three patients (7%); two (4%) had injuries to the internal iliac veins and one (2%) to the rectum. In group B one of the seven patients had injuries to the small intestine. The complications were identified and addressed during surgery, with no later consequences. Two patients (4%) in group A died within 30 days after surgery (6 and 17 days) and two treated in group B died after prolonged complications, sepsis and peritonitis (56 and 70 days).

The histopathological findings are shown in Table 2. Early complications were identified in 10 patients in group A and five in group B (Table 3); in group A the most common was symptomatic lymphocele, in four, of whom open surgery was used in one and percutaneous aspiration in the second, and in two patients the lymphocele resolved spontaneously. There was ureteric dilatation in five patients, which resolved spontaneously.

In July 2003, follow-up results were available for 38 of the 49 patients who survived surgery; of these, 21 had died, five from progression of the primary illness, one from pneumonia and in 15 the cause of death was unknown. For 11 patients no data could be collected. The mean follow-up was 2.2 years. After discharge 11% of the patients had complications; in group A, two had recurrent pyelonephritis, combined with renal insufficiency in one, one had a parastomal hernia and one had superficial wound infection in the stoma area. In group B, one patient lived 366 days after surgery and the other 805 days; during this time neither had any complications; for three other patients there was no survival information.

The median total survival was 2 (0.33–7) years and three patients lived for >5 years (8%). The median survival for patients with ASA II was

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TABLE 3
Early complications in groups A and B

	Group A, n (%)	Group B, n
No complications	36 (78)	2
Complications	10 (22)	5
Lymphocele	4 (9)	–
Bilateral ureteric obstruction	2 (4)	1
Sepsis	2 (4)*, all died	1†, died
Pneumonia	3 (7)*, one died	–
Pyelonephritis	3 (7)	–
Prolonged ileus	2 (4)	1†, died
Unilateral ureteric obstruction	2 (4)	4
Peritonitis	–	1, died
Early mortality	2 (4)	2

One had sepsis and pneumonia; †One had sepsis and prolonged ileus.

2.2 (0.33–7) years, for ASA III 1.6 (0.45–5) years and ASA IV 70 (56–805) days.

At the end of the study (July 2002), six of 20 patients with positive lymph nodes on histopathological diagnosis were alive and 10 had died; no information was available for the four remaining patients. The median survival for these patients was 2 (0.36–5.5) years.

DISCUSSION

This study assessed elderly people at greater risk of perioperative complications, determined on the basis of their ASA score. Many studies to date confirm that using the ASA classification can estimate the risk involved for a patient who is to undergo radical cystectomy. In their prospective study of >6000 surgical cases, Wolters *et al.* [7] underlined the importance of the ASA classification in relation to postoperative monitoring; they emphasized that the risk associated with complications arising at a later stage is highest with an ASA score of III and IV. Other prospective and retrospective studies also confirm the usefulness of ASA scoring for assessing the outcome of surgery [8,9]. Studies have found no relationship between patient age and mortality or morbidity associated with cystectomy. Comorbidity and tumour grade, rather than age, are the important predictors of outcome [10].

In the present study, patients with ASA scores of II and III had similar postoperative morbidity and mortality, but in patients with an ASA score of IV, serious general illness and the advanced tumours resulted in a substantial increase in mortality.

Several studies evaluated the perioperative condition of elderly patients undergoing radical cystectomy. Navon *et al.* [11] reported on 21 patients aged >75 years who had a radical cystectomy with internal urinary diversion; the average hospital stay was 12.4 days, and there were two perioperative deaths (9%) and four early re-operations in three patients, with complications after surgery in 28%. The study of Figueroa *et al.* [12] included 52 patients aged >80 years; the early complication rate was 29%, with no perioperative mortality. In earlier radical cystectomy serial studies the need for transfusion was consistently high [13,14]. In that by Rosaria *et al.* [15], 84 of 101 patients (83%) needed transfusions; the median was 3 units, while 12 (12%) needed ≥8 units. Soulie *et al.* [16] reported on 73 radical cystectomies in patients aged >75 years operated in the urology departments of two different hospitals; the average hospital stay was 34 days. Blood transfusions were required for 31 patients (42.4%), with an average of 2.4 units (range 1–5), and with intraoperative complications in 28 (38%); the perioperative mortality was 2.7% (two patients).

In the present study, four patients (9%) had dementia; they were in good general health and operated on with curative intent. We considered that surgery and urinary diversion would be the best curative method for such patients, to relieve unpleasant symptoms and haematuria, and give them a chance of cure.

There were intraoperative complications in three patients (7%) in group A and early complications in 10 (22%), lymphocele being the most common. Whenever possible, the cystectomy was extraperitoneal and we always tried to reconstruct the peritoneum of the small pelvis, which was probably why lymphatic fluid was not resorbed into the peritoneum but manifested as lymphocele. In group B there were early complications in five patients. Compared with the studies cited above, the incidence of complications was low, possibly as a result of excluding postoperative dementia as a complication.

In group A there were two early deaths, a good result compared with other studies; in group B, with seven patients, there were also two early deaths; this is a high rate, but surgery was the only option because these patients had severe pain, macrohaematuria and a constant need for transfusions. The median hospital stay was 28 days, which reflects the German health system and limited access to outpatient treatment. In the USA, with a different health system, hospital stays are significantly shorter than in Europe [12,17–19].

During the follow-up data were obtained for 38 of the original 53 patients; of these, 21 had died, and there were late complications in 11%. The relatively few complications could be the result of the retrospective nature of the study and incomplete documentation collected from the urologists who monitored the patients after surgery. External urinary diversion also influenced the level of complications. The median total survival was 2 years, and the mean duration of monitoring 2.2 years, results similar to those of earlier studies [10–14].

Thus radical cystectomy is an appropriate curative treatment for urinary bladder carcinoma in elderly patients, especially those with severe voiding symptoms. Despite high morbidity and mortality, this also applies to patients who undergo cystectomy with palliative intent, because it relieves them of severe pain, urination difficulties and frequent macrohaematuria.

CONFLICT OF INTEREST

None declared.

REFERENCES

1. **Game X, Soulie M, Seguin P *et al.*** Radical cystectomy in patients older than 75 years: assessment of morbidity and mortality. *Eur Urol* 2001; **39**: 525–9
2. **Skinner EC, Lieskovsky G, Skinner DG.**

Radical cystectomy in the elderly patient. *J Urol* 1984; **131**: 1065–8

3 **Wood DP Jr, Montie JE, Maatman TJ, Beck GJ.** Radical cystectomy for carcinoma of the bladder in the elderly patient. *J Urol* 1987; **138**: 46–8

4 **Ogawa A, Yanaisawa Y, Nakamoto T, Wajiki M, Hirabayashi N, Nakama M.** Treatment of bladder cancer in patients more than 80 years old. *J Urol* 1985; **134**: 889–91

5 **Chang SS, Smith JA Jr, Wells N, Peterson M, Kovach B, Cookson MS.** Estimated blood loss and transfusion requirements of radical cystectomy. *J Urol* 2001; **166**: 2151–4

6 **Keats AS.** The ASA classification of physical status – a recapitulation. *Anaesthesiology* 1978; **49**: 233–6

7 **Wolters U, Wolf T, Stutzer H, Schroder T.** ASA classification and perioperative variables as predictors of postoperative outcome. *Br J Anaesth* 1996; **77**: 217–22

8 **Pedersen T, Eliasen K, Ravnborg M *et al.*** Risk factors, complications and outcome in anaesthesia. A pilot study. *Eur J Anaesthesiol* 1986; **3**: 225–39

9 **Farrow SC, Fowkes FG, Lunn JN, Robertson IB, Samuel P.** Epidemiology in anaesthesia. II: Factors affecting mortality in hospital. *Br J Anaesth* 1982; **54**: 811–7

10 **National Institute for Clinical Excellence.** Improving Outcomes in Urological Cancers. 2000, 86–94

11 **Navon JD, Weinberg AC, Ahlering TE.** Continent urinary diversion using a Modified Indiana Pouch in elderly patients. *Am Surg* 1994; **60**: 786–8

12 **Figueroa AJ, Stein JP, Dickinson M *et al.*** Radical cystectomy for elderly patients with bladder carcinoma: an updated experience with 404 patients. *Cancer* 1998; **83**: 141–7

13 **Hanash KA, Peracha AM, Al-Zahrani HM *et al.*** Radical cystectomy: minimizing operative blood loss with a ‘stapling technique’. *Urology* 2000; **56**: 488–91

14 **Park KI, Kojima O, Tomoyoshi T.** Intra-operative autotransfusion in radical cystectomy. *Br J Urol* 1997; **79**: 717–21

15 **Rosario DJ, Becker M, Anderson JB.** The changing pattern of mortality and morbidity from radical cystectomy. *BJU Int* 2000; **85**: 427–30

16 **Soulie M, Straub M, Game X *et al.*** A multicenter study of the morbidity of radical cystectomy in select elderly patients with bladder cancer. *J Urol* 2002; **167**: 1325–8

17 **Chang SS, Alberts G, Cookson MS, Smith JA** Jr. Radical cystectomy is safe in elderly patients at high risk. *J Urol* 2001; **166**: 938–41

18 **Lance RS, Dinney CP, Swanson D *et al.*** Radical cystectomy for invasive cancer in the octogenarian. *Oncol Rep* 2001; **8**: 723–6

19 **Stroumbakis N, Herr HW, Cookson MS, Fair WR.** Radical Cystectomy in the octogenarian. *J Urol* 1997; **158**: 2113–7

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Abbreviations: **ASA**, American Society of Anesthesiologists.

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