Bowel Preparation and Peri-operative Management for Radical Cystectomy in Turkey

Turkish Urooncology Association Multicenter Survey

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Purpose: To investigate the preferences and practice patterns of urooncologic surgeons in Turkey on bowel preparation and peri-operative management for radical cystectomy.

Materials and Methods: This study was conducted by Turkish Urooncology Association as a multicenter survey. Participants were asked to fill in questionnaires dispensed at annual oncologic meeting or using internet access to the website of Urooncology Association. The questionnaire consisted of multiple choice or open-ended questions related to frequency of cystectomy, surgical technique and type of diversion, bowel preparation protocol, nasogastric tube applications, antibiotic prophylaxis, and deep vein thrombosis prophylaxis. Collected data from the survey were presented descriptively.

Results: Forty-four questionnaires from 44 surgeons of different centers were evaluated. All participants answered that they always perform bowel preparation before cystectomy. Four participants reported that they had an experience of cystectomy without bowel preparation. Bowel preparation methods included long conservative methods, short enema protocols, and Golytely, but there were significant differences in application of each method. Of participants, 88.6% perform diversion by themselves whereas others ask help from a general surgeon. Antibiotic prophylaxis is preferred mostly by 2 agents using third-generation cephalosporins and metronidazole for a period of 5 days or more in the majority. Type, duration, and dosage of deep vein thrombosis prophylaxis differed among participants.

Conclusion: There are significant individual differences in peri-operative management of radical cystectomy, which render deficient and sometimes inadequate patient care. There is a need to establish standard protocols for bowel preparation and adequate peri-operative management for radical cystectomy.

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INTRODUCTION

Radical cystectomy (RC) represents the standard treatment for muscle and non muscle invasive bladder cancer not controlled by conventional treatment options.[1,2] Despite improvements in peri-operative care, RC is still associated with greater morbidity and mortality than any other urological procedures.[1-4] Radical cystectomy is an invasive procedure, with an early complication rate of approximately 30% and median hospital stay of 7 days in specialist centers, which has significant

implications for peri-operative management and healthcare as a whole.[4]

Bladder cancer is predominantly a disease of the aging population, when comorbid conditions commonly exist, further emphasizing the importance of peri-operative care and surgical management.[5] Bowel preparation, nutritional support, antibiotic prophylaxis, risk of venous thrombosis, etc are well-known measures for RC. However, there are wide variations in treatment protocols, and different peri-operative regimens are recommended by several authors, specifically for bowel preparation.[5-9] In recent years, few reports have been published to attempt standardization of pre- and postoperative measures of RC, including bowel preparation and nutritional support.[5,10-15] However, a guideline statement for standard peri-operative management of RC has not been published yet.

There is no consensus on the best peri-operative regimen for RC mostly due to a lack of evidence from large randomized clinical trials. We sought to investigate the current peri-operative management strategies adopted by Turkish urologists specific to urooncology, to determine the discrepancies of their clinical practice and to evaluate the need for directory of guidelines for cystectomy. The questions posed were specifically designed to include controversial issues in peri-operative management of RC.

MATERIALS AND METHODS

This study was conducted by Turkish Urooncology Association as a multicenter survey. All participants were certified active members of Urooncology Association and they were all experienced surgeons and specific to urooncology in their surgical practice.

A questionnaire was designed to assess patterns of practice across the country regarding peri-operative regimens and bowel preparation at cystectomy and dispatched to urologists (Appendix). The questionnaire consisted of multiple choice or open-ended questions related to frequency of cystectomy, surgical technique and type of diversion, bowel preparation protocol, nasogastric tube applications, antibiotic prophylaxis, and deep vein thrombosis (DVT) prophylaxis.

Participants were asked to fill in the questionnaire dispensed at annual urooncologic meeting or using internet access to the website of Urooncology Association. Subjects' opinions were also asked about cystectomy without any bowel preparation as well as need for a standard protocol of RC preparation and early recovery period management.

Returned questionnaires were analyzed and collected data from the survey were presented descriptively. No statistical analyses were performed.

RESULTS

Forty-four questionnaires from 35 centers (either university hospital or state hospital) were evaluated. Response rate was 76% considering 46 member centers registered to Urooncology Asccociation. Data from selected questions are shown in Table 1.

All participants answered that they always perform bowel preparation before cystectomy, but 4 participants reported an experience of cystectomy without bowel preparation. Bowel preparation includes long conservative method combined with diet restriction plus enema and oral laxatives or one-day protocol using laxatives and/or enema with sodium phosphate and polyethylene glycol administered the day before the surgery, but significant differences were encountered in application of each method. Several authors apply 3-day oral restrictive diet with antibiotics for enteric flora whereas some do not use antibiotics. Some use enemas on the 2nd and 3rd day whereas some use both oral laxative and enema on the 3rd day of preparation. Considering short form of bowel preparation, some use one laxative with enema, other use two consecutive oral laxatives only. Some use 2 laxatives and enema in the evening and early morning while others use only enema at midnight or in the early morning before the operation.

Almost 30% of the participants reported that they would consider doing cystectomy without bowel

Table 1. Descriptive data of selected questions from 44 urologists.

Number of cystectomy per year (n)		**Deep venous thrombosis prophylaxis (n)**	
<5	3	Elastic bandage compression only	4
5 to 10	11	Low molecular weight heparin only	23
10 to 20	19	Low molecular weight heparin + elastic bandage compression	9
>20	11	None	4
Distribution of diversion type, %		**Pre-operative diet restriction (n)**	
Ileal conduit	69, 7	Yes	23
Orthotopic bladder	33, 2	No	21
Catheterized pouch	8, 5		
Mostly used bowel segment for diversion,%		**Agree to consider ileal diversion without bowel preparation (n)**	
Ileum	95, 5	Yes	13
Colon	4, 5	No	21
		Uncertain	10
Antibiotic prophylaxis for bowel flora (n)		**Time to nasogastric tube out (n)**	
Erythromycin	15	1st postoperative day	6
Neomycin	6	2nd postoperative day	8
Both	1	3rd postoperative day	1
None	19	After flatulence	25
		No nasogastric tube	2
Antibiotic prophylaxis (n)		**Time to start first oral intake (n)**	
Metronidazol + 3rd generation cephalosporin 5 to 7 days	31	2nd postoperative day	3
		3rd postoperative day	7
Single dose metronidazol + 3rd generation cephalosporin	9	4th postoperative day	1
		After flatulence	32
Ampicillin/sulbactam + Gentamicin	1	Others	1
Cephalosporin monotherapy	2		
Bowel anastomosis technique, %		**Necessity for Standard protocols, %**	
Primer suture	31, 8	Yes	93,2
Stapler	47, 7	No	4, 5
Both	20, 5	Uncertain	2, 3

preparation when the ileum was used. However, they are all used to doing bowel preparation in their daily practice, which may reflect traditional conservative manner. When participants were asked why they were opposite to no bowel preparation, the reasons were no strong evidence in urology literature, potentially increased risk of complications, and no attempt at their center before, respectively. Nineteen of the participants reported that they would add their patients to such a clinical trial without bowel preparation if requested.

Antibiotic prophylaxis is preferred mostly by 2 agents, including both third-generation cephalosporins and metronidazole for a period of 5 days or more in the majority.

Type, duration, and dosage of DVT prophylaxis differed among participants. Some commence low molecular weight heparin at midnight before the surgery and continue until mobilization while some continue its use 3 days; some use it once a day and others twice a day. Low molecular weight heparin combined with elastic bandages is reported in few. Interestingly, 4 participants reported that they never use any form of prophylaxis.

Of participants, 88.6% perform diversion by themselves whereas remained surgeons ask a general surgeon for help. The ileum is the most preferred bowel segment for diversion. A substantial number of participants (75%) rinse the isolated ileum segment with antiseptic solutions.

A significant number of participants reported that there is a need for preparation of standard protocols for RC. Nearly all participants reported that they would clearly apply these protocols as their routine when they were recommended at guidelines.

DISCUSSION

Peri-operative care impacts substantially on the postoperative course of RC. Antibiotic and DVT prophylaxis as well as bowel preparation are key issues in decreasing morbidity and mortality as much as surgical technique and anesthetic procedures. This study expectedly has shown that

there were great discrepancies between physicians' preferences in implementation of antibiotic prophylaxis, DVT prophylaxis, and bowel preparation regimens for RC.

We have found that every participant uses bowel preparation before the surgery. Almost half of them prefer long conservative bowel preparation methods with diet restricted 2 to 3 days. Currently, there is a raising trend towards fast tract surgery, and thus short form of bowel preparation or abandoning bowel preparation are highlighted in few reports.[5,13,14,16-19] However, bowel preparation acceptance seems to be low among urologists. There is no uniformity in the literature for bowel preparation, and it is not addressed in American Urological Association (AUA) and European Association of Urology (EAU) guidelines in detail. High volume cystectomy centers have different protocols for bowel preparation.[6-8] Few data advocate no bowel preparation for cystectomy when the ileum is to be used in current practice among our survey urologists and probably worldwide is in favor of some form of bowel preparation. Although our study group specifically addresses Turkish urologists, one could infer that heterogeneity in the practice patterns would be similar in most of the countries.

In our survey, most urologists use antibiotic prophylaxis with 2 types of antibiotics, but few prefer one. Most of the participants in our survey use antibiotics longer than advised duration in EAU guidelines.[20] Although EAU guideline recommends maximum 3-day antibiotic usage, our survey has shown that the majority of surgeons prefer antibiotic administration for at least 5 days or more (Table 2).

Our results demonstrated that the majority of urologists wait for flatulence both for nasogastric tube removal and for commencing oral intake. Although there are several reports in favor of early removal of nasogastric tube and early oral intake, there is low acceptability among our urologists.[5,14,19,21] In our survey, oral intake was strictly dependent on flatulence reported by the patient.

The limitations of our study are evident inherent to all surveys, including the wording and order of questions and the potential bias of the interviewer. Our results are clearly limited to practicing Turkish urologists and can not be generalized to any practice in any country. In addition, only descriptive data are presented; statistical comparisons were not performed. Some of other key important questions, including nutrition preferences, catheter care, use of alkalizing agent, etc are overlooked in our survey. Despite these limitations, this is one of the first surveys of practice patterns in RC among urologists. This study can perhaps be looked on as providing a baseline reference assessment of practice preferences for cystectomy to which future assessments of guideline implementation, impact, and compliance can be compared.

In the present study, our main aim was to describe the current situation and controversies about peri-operative management of cystectomy. Although our study sample represents Turkish Urology, we strongly believe, based on the current literature, that differences in practice patterns are similar worldwide. More flexible and freely adopted protocols are sometimes inappropriate and may increase morbidity because there is no written standard guideline

Table 2. Comparison of current approaches in the peri-operative management of cystectomy.*

	Current study	EAU Guideline	AUA Guideline	Reference 10	Reference 5
Bowel preparation Short form Long conservative diet No bowel preparation	 50% 50% None	Not addressed	Not addressed	No bowel preparation	Cleansing enema before surgery
Antibiotic prophylaxis	At least 5 days	Maximum 3 days	Not addressed	Not addressed	Not addressed
Nasogastric tube	Usually after flatulence	Not addressed	Not addressed	Not addressed	2 to 8 hours
Deep venous thrombosis prophylaxis	Heterogeneous	Not addressed	Not addressed	Low molecular weight Heparin + stocking	Not addressed

*EAU indicates European Association of Urology; and AUA, American Urological Association.

or consensus report about bowel preparation and early postoperative management of RC. Hence, our study may take attention of urology community into set up of standard approaches in peri-operative management of RC.

We believe our results clearly demonstrate a lack of uniformity and an overall low acceptance of the few urologic guidelines or recommendations, which cause concern and should lead to further investigations. Our findings highlight the importance of adequate standard peri-operative regimens for RC.

CONCLUSION

The majority of urologists use their own experience alone to direct peri-operative period, given the lack of evidence to support specific protocol. Due to lack of standard recommendations, more liberate bowel preparation and peri-operative regimens have been performed currently, which seem to be inadequate in many forms. An evidence-based protocol of peri-operative management could contribute to reduce discrepancies and thus prevent or reduce complications associated with radical cystectomy and intestinal urinary diversion. We have clearly shown the rationale of such a protocol.

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CONFLICT OF INTEREST

None declared.

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APPENDIX

Questionnaire dispensed to participants in order to assess practice patterns of bowel preparation and peri-operative management protocols.

1) How often do you perform cystectomy in a year?

   <5 5 to 10 10 to 20 >20

2) Are you doing urinary diversion yourself or with help of a general surgeon?

   Myself

   Help by a general surgeon

3) What is the distribution of diversion type you are doing in your current practice? Please rank in percentage for each.

   Ileal conduit

   Catheterized pouch

   Orthotopic bladder

4) Which segment of the bowel do you mostly use for diversion?

   Ileum

   colon

5) Which bowel anastomosis technique do you prefer?

   Primer suture Stapler Both

6) Do you rinse bowel segment isolated at surgery with antiseptic solutions?

   Yes No

7) Do you always recommend bowel preparation before cystectomy for your patients?

   Yes No

8) Do you have any experience of doing cystectomy without bowel preparation?

   Yes No

9) Do you agree to consider doing cystectomy without bowel preparation when the ileum is to be used?

   Yes No (explain why) Uncertain

10) When do you take nasogastric tube out?

   1st postoperative day

   2nd postoperative day

   3rd postoperative day

   After flatulence

   No nasogastric tube

11) When do you start first oral intake?

   2nd postoperative day

   3rd postoperative day

   4th postoperative day

   After flatulence

   Other

12) Which antibiotic do you commence for prophylaxis of the bowel flora?

   Erythromycin

   Neomycin

   Both

   None

13) What is your antibiotic prophylaxis regimen for cystectomy?

14) What is your bowel preparation regimen before cystectomy?

15) What is your preference for DVT prophylaxis?

   Elastic bandage compression only

   Low molecular weight heparin only

   Low molecular weight heparin + elastic bandage compression

   None

16) Do you think diet restriction is required before surgery for better bowel preparation?

2 to 3-day diet restriction is required.

No need to restrict diet until midnight before the surgery.

17) Do you consider enrolling your patients in a cystectomy clinical trial with no bowel preparation?

Yes, I do.

No, I do not.

Uncertain

18) Do you think there is a need for standard bowel preparation and peri-operative management protocol?

Yes No Uncertain

19) Would you use any standard bowel preparation or peri-operative management protocol for cystectomy if recommended by EAU or AUA guidelines at your routine?

Yes No Uncertain