Supplementary data: Preoperative nutritional factors and outcomes after radical cystectomy: A narrative review

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Supplementary Table 1. Summary of the studies included in this narrative review

First author	Year	Eligible subjects (n)	Factor(s) of nutritional evaluation	Outcome	Results	Methods of classification for complications
Hollenbeck[26]	2006	2538	Albuminemia and ≥10% weight loss	Length of hospital stay (>30d) and mortality	Logistic regression: Length of stay ≥30d: albuminemia ≤3.5 g/dl (OR 2.1; 95% CI 1.2–3.8). Mortality within 30d: weight loss ≥10% (OR 2.7; 95% CI 1.1–6.4), 90d: albuminemia ≤3.5 g/dl, (OR 12.0; 95% CI 2.8–51.0), weight loss ≥10% (OR 2.9; 95% CI 1.5–5.4).	
Reyes[33]	2006	343	BMI	Neobladder-related outcomes, pyelonephritis, incisional hernia, wound infections, wound dehiscence, and voiding patterns	Chi-Square test: Normal weight vs. overweight vs. obese subjects: Overall complications (p=0.012), urinary tract infection (p=0.001), pyelonephritis (p=0.04), wound infection (p=0.04) were less frequent in the normal weight group	
Butt[34]	2008	51	BMI	Complications rate, hospital length of stay, mortality	Kruskal-Wallis and Fisher's exact test: Hospital length of stay (results not provided), complications rate (NS), mortality (only one event)	
Maurer[35]	2010	390	BMI	Complications and mortality within 90d after RC	Mann-Whitney test: Higher BMI: 30d postoperative bleeding rate (p=0.02), other complications (NS), mortality (NS). Cox regression: Mortality (NS)	
Novara[13]	2009	358	BMI	All complications and high-grade complications (including mortality) within 90d after RC	NS	MSKCC and Clavien-Dindo
Shabsigh[3]	2009	1320	BMI	All complications and high-grade complications within 90d after RC	NS	MSKCC and Clavien-Dindo
Svatek[14]	2009	283	BMI	Any AE within 90d after RC	Logistic regression: AE 90d: BMI (OR 1.16; 95% CI 1.08–1.23). High-grade (2–4): BMI (OR 1.10; 95% CI 1.04–1.16)	Common Terminology Criteria Adverse Events

AE: adverse event; BMI: body mass indexd: CI: confidemce interval; day(s); HR: hazard ratio; OR: odds ratio; MSKCC: Memorial Sloan Kettering Cancer Classification; Nb: number; NRS: nutritional risk screening; NS: non-statistically significant; RC: radical cystectomy; SMI: skeletal muscle index.

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Svatek[36]	2010	283	BMI	Ileus	Fisher's exact test: (p=0.014). Logistic regression: (OR 1.09; 95% CI 1.03–1.17)	
Gregg[46]	2011	905	Nutritional risk was defined as one or more factor between: albuminemia <3.5 g/dl, BMI<18.5, and >5% weight loss	Overall mortality, mortality within and after 90d after RC	Cox regression: Overall survival (HR 1.82; 95% CI 1.25–2.65), within 90d (HR 2.91; 95% CI 1.36–6.23), after 90d (HR 1.55; 95% CI 1.01–2.38)	
Morgan[47]	2011	220	Albuminemia	Mortality 90d after RC in ≥75 years old subjects	Cox regression: Albuminemia <3.7 g/dl (HR 2.50; 95% CI 1.40–4.45)	
Lambert[49]	2012	238	Albuminemia	Complications and overall and cancer-specific mortality after RC	2-sample test: Overall complications: Albuminemia <3.5g/dl vs. normal albuminemia (p=0.014). Cox regression: Overall survival: Albuminemia <3.5 g/dl (HR 1.76; p=0.04), cancer-specific survival: NS	
Large[37]	2012	91	BMI	Delirium	NS	
Berger[15]	2013	256	BMI	Inpatient complication and mortality within 90d	Logistic regression: Inpatient complications (continuously, OR 1.13; 95% CI 1.02–1.24), mortality (NS). Log-rank test: mortality (NS)	Clavien-Dindo
Chan[50]	2013	117	Albuminemia	Overall mortality rate at 5 years after RC	Cox regression: Albuminemia >3.9 g/dl (HR 0.946; 95% CI 0.902–0.992; p=0.022)	
Chromecki[30]	2013	4118	BMI	Cancer-specific and overall mortality	Cox regression: BMI >30 kg/m^2: Cancer-specific mortality (HR 1.43; 95% CI 1.24–1.66; p<0.001), overall mortality (HR 1.81; 95% CI 1.60–2.05; p<0.001). Similar results for BMI as a continuous variable (all p values <0.001)	
Djaladat[48]	2013	1964	Albuminemia	Any AE leading to lengthening hospital stay or re-admission occurring within 90d after RC, mortality within 90d recurrence-free survival, and overall survival at 5 years	Logistic regression: Complications within 90d (NS), mortality within 90d (few events n=15) Cox regression: Recurrence free survival (HR 1.68; 95% CI 1.16 –2.43), overall survival (HR 1.93; 95% CI 1.43–2.63)	
Jensen[54]	2013	82	NRS	Length of hospital stay (≥11d)	NS	
Mursi[16]	2013	31	Albuminemia, BMI	Early (≤30d), late (31 to 90d) and cumulative (<90d) re-admission rate, complications rate and grade, and mortality after RC	Chi-Square: albuminemia <3.5 g/dl: higher mortality rate (p=0.048, but few events), NS for other outcomes. BMI: NS	Clavien-Dindo
Xylinas[31]	2013	231	BMI	Cancer-specific mortality	Cox regression: Modelled continuously (HR 1.50; 95% CI 0.99–2.24; p=0.052)	

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Al-Daghmin[39]	2014	272	BMI	30 and 90d re-admission rate	Logistic regression: 30d (OR 1.12; 95% CI 1.05–1.19; p=0.004). 90d (OR 1.10; 95% CI 1.0–1.17; p=0.004)	
Bachir[32]	2014	847	BMI	Overall survival and disease-specific survival	Kaplan-Meier: No differences in overall survival (p=0.32) and disease-specific survival (p=0.35) between/among BMI subgroups (<25, 25–29, and ≥30 kg/m^2)	
Donahue[45]	2014	386	Albuminemia, BMI	Parastomal hernia within 2 years after RC	Cox regression: Albuminemia (continuously, HR 0.43; 95% CI 0.25–0.75; p<0.003). BMI (continuously, HR 1.08; 95% CI 1.05–1.12; p<0.0001)	
Garg[20]	2014	1320	Albuminemia	Complications within 30 and 90d and mortality at 90d after RC	Fisher's exact test: Albuminemia <4 vs ≥4g/dl: Complications at 30d: neurological (p=0.001), wound (p<0.001), any complication (p=0.005). Complications between 60 and 90d (NS). Logistic regression: Grade 1–5 complications within 90d: (continuously, OR 0.61; 95% CI 0.42–0.90). Mortality within 90d: (continuously, OR 0.33; 95% CI 0.14–0.75)	MSKCC and Clavien-Dindo
Gandaglia[21]	2014	1094	Albuminemia, BMI	Complications within 30d (overall complications, prolonged operative time, prolonged length of stay, perioperative mortality)	Logistic regression: Overall complication: Albuminemia: unknown vs. ≥3 g/dl (OR 0.64; 96% CI 0.48–0.85; p=0.01). BMI >30 vs. <25 kg/m^2 (OR 1.67; 95% CI 1.16–2.42; p=0.01). Other outcomes: NS	
Johnson[22]	2014	1213	Albuminemia, >10% weight loss within 6 months before RC and BMI	Complications within 30d after RC	Logistic regression: Albuminemia <3.5 g/dl (OR 1.79; 95% CI 1.06–3.03). BMI: NS. Weight loss: NS	
Lavallée[23]	2014	2303	Albuminemia, >10% weight loss within 6 months before RC and BMI	Complications within 30d after RC	NS	
Psutka[41]	2014	262	BMI and fat mass index	Overall survival	Cox regression: Increasing BMI correlated with improved overall survival (p=0.03), fat mass index (NS)	
Roghmann[17]	2014	535	BMI	All complications and high-grade complications within 90d after RC	Logistic regression: Any complication (OR 1.08; 95% CI 1.03–1.13). High-grade (3 and 4, OR 1.07; 95% CI 1.02–1.12)	MSKCC and Clavien-Dindo
Tyson[24]	2014	1293	BMI	30d outcomes after RC: mortality, wound events, sepsis, pulmonary events, renal failure, thromboembolic and cardiac events, hospital length of stay, rates of return to operating suite, total operative time, and total blood transfusions	Fisher's exact test: BMI <30 vs. ≥30 kg/m^2: operative time (p=0.04), NS for other outcomes	

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Wan[18]	2014	247	Albuminemia, BMI, SMI	Complications within 90d	Logistic regression: Overall complication: Albuminemia <3.5g/dl (OR 3.63; 95% CI 1.20–11.00; p=0.0023), BMI (NS), SMI (NS). High-grade complications: Albuminemia (NS), BMI (NS), SMI (OR 0.95; 95% CI 0.92–0.99; p=0.017)	Clavien-Dindo
Hinata[42]	2015	730	Albuminemia, BMI	Overall survival	Cox regression: Albuminemia <3.5g/dl vs. 3.5 g/dl (NS). BMI <22kg/m^2 vs. ≥22 kg/m^2 (HR 1.65; 95% CI 1.17– 2.33; p=0.004)	
Meyer[25]	2015	1776	Albuminemia, BMI	Wound dehiscence	Logistic regression: BMI between 25 and 30 kg/m^2 (OR 2.1; 95% CI 1.1–3.9; p=0.02) and BMI >30 kg/m^2 (OR 2.3; 95% CI 1.3–4.4; p=0.008) vs. BMI <25 kg/m^2. Chi-Square: Albuminemia (NS), BMI (p=0.015)	
Potretzke[43]	2015	241	BMI	Symptomatic venous thromboembolic events within 90d after RC	Logistic regression: BMI ≥30 kg/m^2 vs. <30 kg/m^2 (OR 4.69; 95% CI 1.70–12.92)	
Sun[44]	2015	2316	BMI	Symptomatic venous thromboembolism within 90d after RC	Logistic regression: BMI (p=0.0015)	
Caras[27]	2016	1,374	Albuminemia	30d complications (morbidity and mortality)	Logistic regression: Albuminemia <3.5g/dl: Morbidity (OR 1.49; p=0.006), Mortality (NS)	
Dabi[38]	2016	701	BMI	Cancer-specific mortality	Cox regression: BMI >30 kg/m^2 vs. 18–25 kg/m^2 (HR 1.58; 95% CI 1.06– 2.34; p=0.02)	
Jensen[28]	2016	246	BMI, nutritional status	Length of hospital stay	Linear regression: BMI continuously (NS), Nutritional status (NS)	
Liu[51]	2016	296	Albuminemia/ (total proteinemia/ albuminemia) ratio	Cancer-specific mortality	Cox regression: Ratio ≥1.6 (HR 0.28; 95% CI 0.12–0.68; p=0.005)	
Movassaghi[40]	2016	670	BMI	Parastomal and incisional hernia	Cox regression: BMI ≥30 kg/m^2 vs. <30 kg/m^2: Parastomal hernia (NS), Incisional hernia (HR 2.11; 95% CI 1.26–3.56; p=0.004)	
Osawa[19]	2016	2,240	BMI	90d complications (morbidity [Clavien-Dindo Grade 3–5] and mortality)	Logistic regression: 90d mortality: continuously (OR 1.07; 95% CI 1.02–1.12; p=0.004), 90d morbidity continuously (OR 1.04; 95% CI 1.02–1.07; p<0.001)	Clavien-Dindo

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