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URINARY INCONTINENCE AND ERECTILE DYSFUNCTION AFTER RADICAL PROSTATECTOMY: ASSOCIATION WITH ROUTE AND TECHNIQUE OF OPERATION

Hypothesis / aims of study

Radical prostatectomy can be performed using three main routes: open abdominal, perineal, and laparoscopically. The incidence of postoperative urinary incontinence (UI) and erectile dysfunction (ED) is thought to be less with the perineal or endoscopic approach and when bilateral or unilateral nerve sparing is possible. The aim of this study was to describe the prevalence of persistent urinary incontinence (UI) and erectile dysfunction (ED) amongst a group of men who had urinary incontinence soon after radical prostatectomy, and who were enrolled in a randomised controlled trial (RCT) of conservative treatment (MAPS: Men After Prostate Surgery).

Study design, materials and methods

Men having radical prostate surgery were identified in 34 centres and invited to receive a screening questionnaire at three weeks after operation. Information on the route of operation and whether a nerve bundle sparing procedure had been possible was collected by local recruitment officers, and the prevalence of subsequent incontinence was investigated. A sub-set of men who were incontinent at screening were randomised to a controlled trial of conservative treatment or standard management, and followed up at 3, 6, 9 and 12 months after randomisation. UI was assessed by postal questionnaires using the ICIQ-UI Short Form survey instrument (www.iciq.net). Sexual function was assessed using the ICSmale and ICSsex questions also used in ProtecT. The prevalence of UI and ED was compared for the various surgery types using the Chi-squared test of association.

Results

Of those eligible for screening, 95% (742/780) of men returned a questionnaire at around 6 weeks after surgery, of whom 691 (93%) were incontinent. 93% of the men were incontinent at first. Table 1 shows the prevalence of incontinence according to the three routes of operation and nerve bundle sparing when this information was available. There was no difference according to route of operation (P=0.54), or (where this was reported) nerve bundle sparing (P=0.19).

Table 1 Prevalence of UI at three weeks after operation

n/N (%)	**All responders N=742***	**Abdominal N=585**	**Perineal N=15**	**Laparoscopic N=140**
Number of men with any UI at screening	691/742 (93)	543/585 (93)	15/15 (100)	131/140 (94)
Nerve bundle sparing and UI #	658/708 (93)	N=555	N=15	N=137
• 1 bundle spared	126/133(95)	98/103 (95)	5/5 (100)	23/25 (92)
• 2 bundles spared	280/302 (93)	212/230 (92)	4/4 (100)	64/68 (94)
• Neither spared	87/90 (97)	71/74 (96)	1/1 (100)	15/14 (100)
• Unknown sparing	165/183 (90)	133/148 (90)	5/5 (100)	26/29 (90)

* *data on route of operation not reported for 2 men;*

\# *data on nerve bundle sparing not reported for 34 men*

Of the 691 men with persistent UI, 411 agreed to enter a randomised controlled trial of conservative treatment (reported elsewhere). Table 2 shows that the prevalence of UI decreased with time. However, at a year after surgery, around three quarters of the men were still incontinent, and this prevalence did not differ according to route of operation (P=0.5) or nerve-bundle sparing (P=0.83) (Table 2). A higher proportion of men (90%) remained incontinent after perineal surgery but the number of men in this group was small.

Table 2 Prevalence of UI at 3, 6, 9 and 12 months after randomisation (n/N (%)

INCONTINENCE	**3 months**	**6 months**	**9 months**	**12 months**
All men	348/398(87)	316/394(80)	301/385(78)	299/391(76)
Abdominal route	261/306(85)	234/302(77)	229/296(77)	225/298(76)
Perineal route	9/10(90)	9/10(90)	9/10(90)	9/10(90)
Laparoscopic route	76/80(95)	71/80(89)	61/77(79)	63/80(79)
Nerve bundle sparing				
1 bundle spared	59/69(86)	53/69(77)	52/67(78)	49/67(73)
2 bundles spared	140/158(89)	127/155(82)	118/150(79)	122/156(78)
Neither spared	46/53(87)	44/54(81)	41/54(76)	41/53(77)
Unknown sparing	87/102(85)	77/100(77)	75/98(77)	73/98(74)

While 80% of men had persistent erectile dysfunction at 12 months, this did not vary according to type of operation (P=0.92) (Table 3). In contrast, in those men in whom it had been possible to spare one or both nerve bundles, fewer men were affected, while the incidence was highest (94%) in those where it had not been possible to spare the nerve bundles (P=0.002).

Table 3 Prevalence of erectile dysfunction* at 12 months after randomisation (n/N (%)

	12 months
All men (route of operation)	**303/379(80)**
Abdominal route	232/288(81)
Perineal route	8/10(80)
Laparoscopic route	62/79(78)
All men (nerve bundle sparing)	
One nerve bundle spared	51/65(78)
Both nerve bundles spared	110/152(72)
Neither spared	48/51(94)
Unknown sparing	84/97(87)

* ED defined as no erection or severely reduced stiffness

Interpretation of results

In contrast to reports in the literature, prevalence of UI was not significantly different according to route of operation or nerve sparing technique, either soon after operation or at 12 months. On the other hand, prevalence of ED was significantly higher amongst those in whom it had not been possible to spare the nerve bundles.

Concluding message

Urinary incontinence and erectile dysfunction are common after radical prostatectomy for prostate cancer and persist in more than three quarters of men at one year after surgery. Route of operation or nerve-sparing technique was not associated with long term persistent UI. On the other hand ED was most common when nerve sparing was not possible. As this is likely to be due to clinical factors (such as access or size of tumour) it may be unavoidable. However, the results highlight the magnitude of the problems posed by both UI and ED, as improvement is unlikely after the first 6 months. Clinicians need to provide a clear assessment of the outcomes men can expect after prostate surgery. Men with persistent UI and ED should be prioritised for further treatment.

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