

FREQUENCY OF PATIENT-REPORTED UTIs PREDICTS POOR QUALITY OF LIFE AFTER SPINAL CORD INJURY A PROSPECTIVE OBSERVATIONAL STUDY

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Introduction

- Up to 60% of people with spinal cord injury (SCI) report recurrent UTIs
- Patient-reported UTIs (PRUTIs) may not be true UTIs but are still critical health events - representing a disturbance in normal body function
- PRUTI symptoms may be non-specific: abdominal pain, muscle spasticity, and lethargy. However, these can also result from other conditions (e.g. fecal impaction, over-heating)
- Whether PRUTIs represent true UTIs or other medical issues is not the focus of our study. Rather we want to know how these health events - which are often attributed to the urinary tract - effect quality of life (QOL)
- Hypothesis: Individuals with SCI will have worse QOL with increasing number of PRUTIs

Methods

- Data is from Neurogenic Bladder Research Group prospective observational registry
- Inclusion: > 18 years, English-speaking, SCI from: trauma, stroke, non-malignant spinal cord tumor, surgical injury, or transverse myelitis
- No formal chart review performed
- Frequency of PRUTIs: response to “How many UTIs have you had in the past 12 months?”
- Four items from SCI-QOL Bladder Complications scale assessed QOL:
 - 1) “Did your UTIs limit daily activities?”
 - 2) “Did your UTIs increase skeletal muscle spasms?”
 - 3) “Did you have UTIs that would not go away?”
 - 4) “Did you avoid going out because of UTIs?”
- Responses: 5-point Likert scale from (1) “never” to (5) “always”.
- Univariable and multivariable analyses to find predictors of worse UTI-related quality of life.
- To 12 item short form (SF12) to assess effect of UTIs on overall QOL

Results

	Rate of patient-reported UTIs in the last year				p value
	0	1 - 3	4 - 6	> 6	
All patients (%)	388 (26)	677 (46)	223 (15)	190 (13)	
Total NBSS score - median [IQR]	20 [13,28]	23 [16,30]	26 [20,35]	29 [21,37]	<.0001
By primary bladder management (%)					<.0001
Spontaneous void into toilet	98 (25)	68 (10)	20 (9)	14 (7)	
Pads/condom catheter	13 (3)	32 (5)	6 (3)	8 (4)	
Clean intermittent catheterization	178 (46)	381 (56)	127 (57)	94 (49)	
Indwelling Catheter	49 (13)	126 (19)	44 (20)	52 (27)	
Surgery	50 (13)	70 (11)	26 (11)	22 (11)	
Age - mean (SD)	47 (14)	45 (13)	43 (12)	43 (13)	
Gender (%)					<.0001
Male	247 (64)	434 (64)	107 (48)	105 (55)	
Female	141 (36)	243 (36)	116 (52)	85 (49)	
Income level (%)					<.0001
< 40K	123 (32)	246 (36)	83 (37)	90 (47)	
40 - 75K	78 (20)	127 (19)	48 (22)	28 (15)	
> 75K	88 (23)	126 (19)	38 (17)	29 (15)	
Unknown	99 (26)	170 (25)	53 (24)	41 (22)	
In-home support (%)					<.0001
None	189 (49)	304 (45)	87 (39)	62 (33)	
Hire help	107 (28)	193 (29)	69 (31)	78 (41)	
Daily Family/Friend	18 (5)	56 (8)	27 (12)	16 (8)	
Live in Family/Friend	73 (19)	120 (18)	39 (18)	33 (17)	
Tobacco use (%)					<.0001
Never	247 (64)	437 (65)	138 (62)	107 (56)	
Former	106 (27)	175 (26)	62 (28)	54 (28)	
Current	34 (9)	63 (9)	21 (9)	28 (15)	
Alcohol use frequency (%)					<.0001
Never	116 (30)	222 (33)	81 (36)	74 (39)	
Monthly or less	123 (32)	214 (32)	71 (32)	61 (32)	
2-4 times per month	79 (20)	146 (22)	40 (18)	32 (17)	
2 or more times per week	69 (18)	94 (14)	30 (13)	23 (12)	
Level of Injury (%)					<.0001
Tetraplegic	162 (42)	303 (45)	85 (38)	85 (45)	
Paraplegic	226 (58)	374 (55)	138 (62)	105 (55)	
Years since injury - mean (SD)	14.4 (11)	14.3 (12)	12.7 (11)	13.2 (12)	
Hospitalized for UTI in last year (%)	62 (16)	149 (22)	54 (24)	65 (34)	<.0001
SF12 Physical Health Score - mean (SD)	41 (11)	41 (11)	39 (11)	37 (10)	<.0001
SF12 Mental Health Score - mean (SD)	49 (11)	49 (11)	47 (11)	45 (12)	<.0002

SD-standard deviation, BMI-body mass index, UTI-urinary tract infection, NBSS-neurogenic bladder symptom score, SF12-12 Item Short Form Health Survey
Percentages in a group may not add up to 100 due to rounding
Incontinent includes spontaneously voiding to diapers, spontaneously voiding to pads, and condom catheter

Table 1. Demographic and clinical information by rate of patient-reported UTIs in the last year.

- Demographic data by PRUTI rate is in Table 1 (N=1,478)
- More PRUTIs was significantly associated with progressively worse QOL for all 4 items (p<0.001) (Figure 1)
- When controlling for demographic and clinical variables, more PRUTIs is independently associated with worse QOL (Table 2)
- Increasing PRUTIs was independently associated with worse SF12 Physical Health score, but not Mental Health score

Results

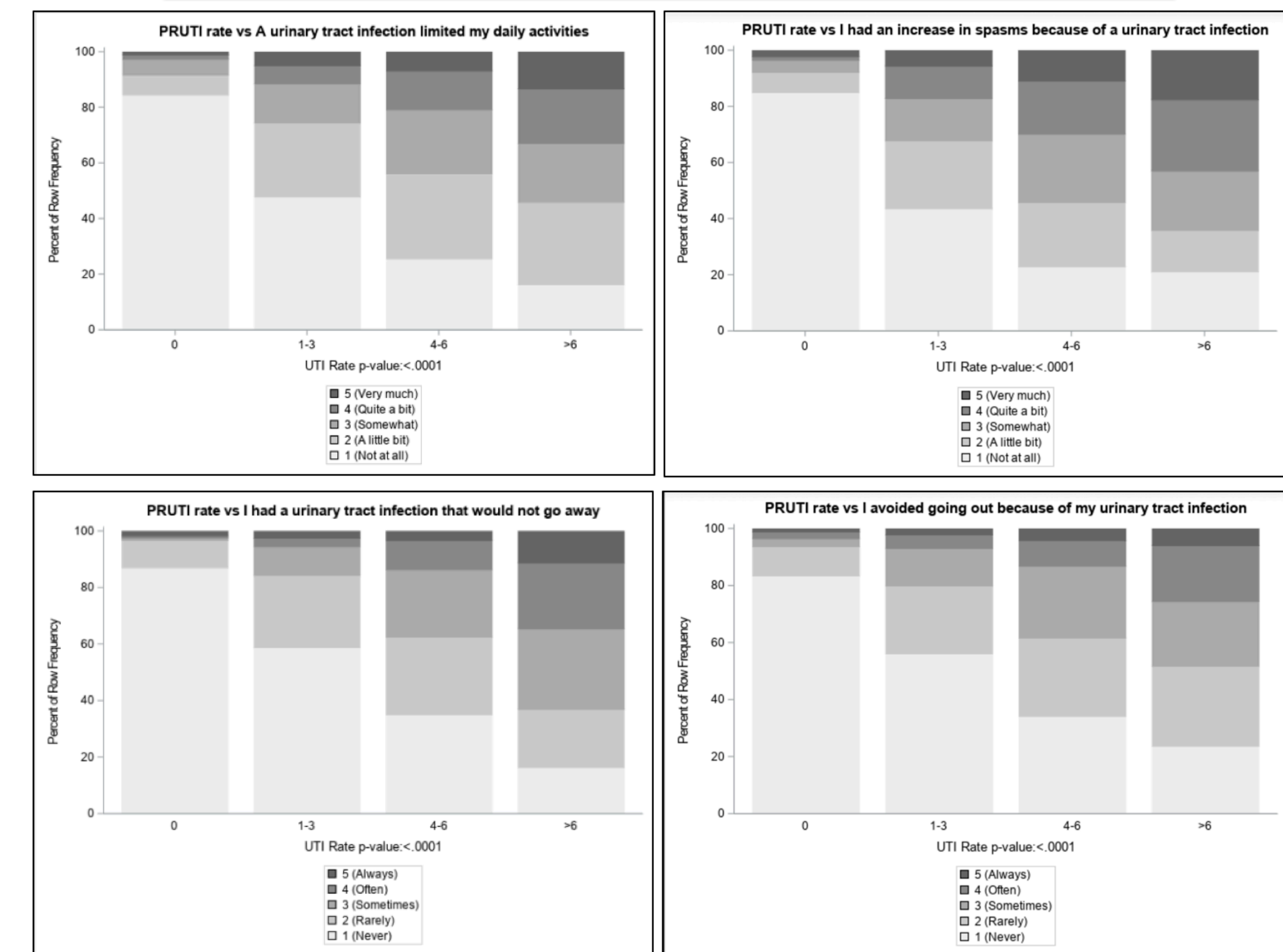


Figure 1. PRUTI rate and the effect on 4 separate bladder-related QOL items

	1. UTI limited daily activities		2. UTI increased muscle spasms		3. UTI would not go away		4. Avoided going out due to UTI	
UTI rate	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
0	Reference	--	Reference	--	Reference	--	Reference	--
1-3	3.4	2.2 - 5.2 (p<0.0001)	4.4	2.9 - 6.6 (p<0.0001)	4.5	2.3 - 8.7 (p<0.0001)	2.8	1.7 - 4.6 (p<0.0001)
4-6	6.9	5.2 - 13.4 (p<0.0001)	9.6	5.9 - 15.6 (p<0.0001)	13.2	6.6 - 26.3 (p<0.0001)	6.7	3.9 - 11.4 (p<0.0001)
>6	9.0	8.1 - 21.2 (p<0.0001)	12.4	7.5 - 20.6 (p<0.0001)	30.1	15.0 - 60.4 (p<0.0001)	7.2	4.2 - 12.4 (p<0.0001)

Table 2. Rate of PRUTIs in the past 12 months and the risk of worse quality of life as a result

Conclusions

- More PRUTIs are inversely related to bladder-specific QOL in people with SCI
- More PRUTIs also negatively impact overall QOL (i.e. SF12 Physical domain)
- These health events (whether true UTIs or not) are important to accurately diagnose and treat as they significantly reduce QOL

