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Incorporation of Mindfulness Exercises to Reduce Anxiety and Pain during Urodynamic Testing: A Randomized Controlled Pilot Study
Pansy Uberoi MD, MPH, Anna Smitherman PhD, Forrest Jellison MD
San Antonio, TX. Presentation to be made by Dr. Uberoi

Objectives: Mindfulness exercises have shown improvement in emotional coping and reduction of anxiety, leading to their incorporation into treatment for acute and chronic pain conditions. The present trial compares the impact of mindfulness exercises as they pertain to anxiety and pain levels among patients undergoing invasive in-office urodynamics (UDS).
Methods: Twenty-seven patients were randomized to either psychologist led mindfulness exercises or an empty quiet room prior to undergoing UDS. The personnel performing UDS were blinded to the intervention. The primary outcome, reduction of anxiety after UDS, was measured by the

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Incorporation of Mindfulness Exercises to Reduce Anxiety and Pain During Urodynamic Testing: a Randomized Controlled Pilot Study

Pansy Uberoi MD, MPH; Forrest Jellison MD; Anna Smitherman PhD

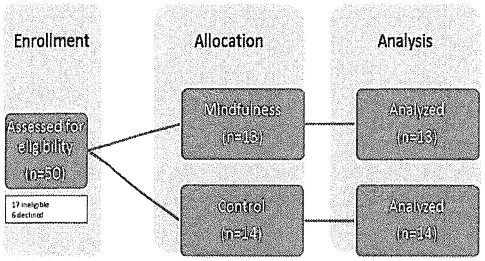
San Antonio Uniformed Services Health Education Consortium, San Antonio, TX

Objective

Mindfulness exercises have shown improvement in emotional coping and reduction of anxiety, leading to incorporation in treatment plans for chronic and acute pain conditions[1,2]. The present randomized pilot study compares the impact of mindfulness among patients undergoing invasive in-office urodynamic studies[3,4] with primary outcome of anxiety and secondarily pain, fear and embarrassment.

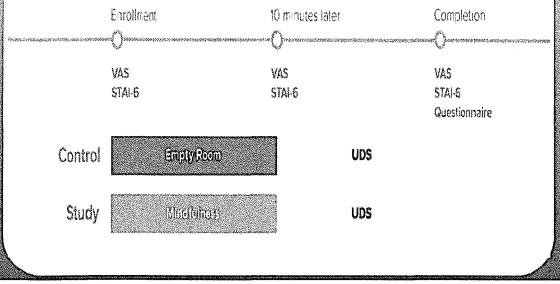
Methods

Randomized, controlled, pilot study



Data collected
- Visual Analog Scale for Pain (VAS)
- State-Trait Anxiety Inventory (STAI-6)
- Participant Questionnaire

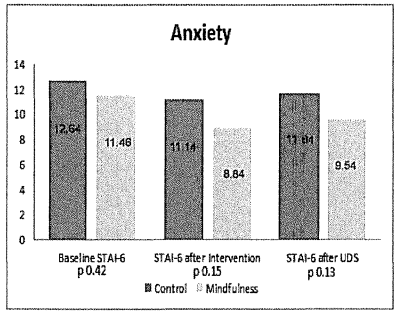
Primary endpoint – anxiety measured by STAI-6
Secondary endpoints – pain, fear, embarrassment

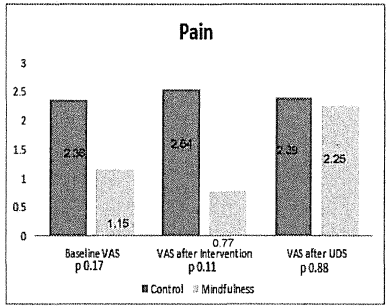


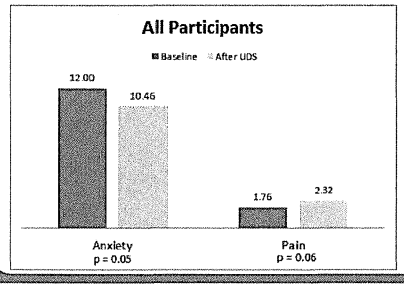
Results

Demographics			
	Mindfulness	Control	p-value
Age [mean and (sd)]	59.23 (10.83)	57.46 (14.85)	0.73
Male (n)	8% (1)	0% (0)	
Female (n)	92% (12)	100% (13)	0.23
Race (n)			
—White	38% (5)	54% (7)	
—Black	31% (4)	15% (2)	
—Hispanic	23% (3)	23% (3)	
—Other	8% (1)	8% (1)	0.80
Perceived Health* [mean and (sd)]	2.54 (0.66)	1.85 (0.69)	0.02

Symptoms			
	Mindfulness (n)	Control (n)	p-value
Leakage/incontinence	69% (9)	77% (10)	0.66
Obstruction/Hesitancy	31% (4)	15% (2)	0.35
Urgency	77% (10)	62% (8)	0.39
Frequency	54% (7)	62% (8)	0.69







Emotions			
	Mindfulness	Control	p-value
Anxious	1.00 (1.08)	1.31 (1.11)	0.45
Afraid	0.08 (0.28)	0.85 (1.21)	0.05
Embarrassed	0.54 (0.88)	1.23 (1.09)	0.07
Uncomfortable	1.25 (1.22)	1.23 (1.36)	0.80
Pain	0.92 (1.04)	1.31 (1.38)	0.55
Bladder Pain	1.39 (1.12)	0.62 (0.18)	0.05
Rectal Pain	0.92 (0.49)	1.08 (1.04)	0.80
Worry about Radiation	0.08 (0.28)	0.23 (0.60)	0.52
Worry about UTI	0.15 (0.56)	0.92 (1.32)	0.04
Worry about Results	0.54 (0.66)	0.62 (0.77)	0.86

Discussion

Urodynamics is associated with anxiety, embarrassment and discomfort[3]. Mindfulness exercises have been reported to improve emotional coping in acute and chronic conditions[1,2].

In this pilot randomized control trial, mindfulness exercises prior to UDS did not show an improvement in the primary outcomes anxiety as measured by the STAI-6. Secondary outcomes of fear, embarrassment, and worry about UTI were noted to be lower in the mindfulness group with statistical significance or trend toward it. As hypothesized, there was no significant difference in pain levels on VAS. Bladder pain was significantly worse in the mindfulness group. When taken in aggregate, anxiety levels decreased significantly for all patients.

We suspect a confounding effect may have been present in the control group as several subjects self-reported performing their own "relaxation techniques" in the quiet, empty room.

Summary

1. Mindfulness exercises prior to UDS did not result in decreased anxiety or pain.
2. Fear and embarrassment were significantly lower or trending in the mindfulness group.
3. Future study with a better designed control that simulates the clinical environment with adequate power may impact anxiety and pain during UDS.

References

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Methods: Twenty-seven patients were randomized to either psychologist led mindfulness exercises or an empty quiet room prior to undergoing UDS. The personnel performing UDS were blinded to the intervention. The primary outcome, reduction of anxiety after UDS, was measured by the state-trait anxiety inventory (STAI-6). STAI-6 consists of questions regarding positive aspects of mood and negative aspects of mood. Secondary outcome of pain was measured by the visual analog scale (VAS). Participants completed questionnaires at baseline, after control/study intervention, and immediately after UDS. Wilcoxon-Mann-Whitney test was performed for difference between anxiety and pain between groups. Secondary analyses were performed with Wilcoxon sign rank test to measure differences in changes within each group.

Results: Demographics, past medical history and presenting symptoms were similar between the groups. There was no statistically significant difference in anxiety in the mindfulness or control group at baseline ($p=0.42$), after intervention ($p=0.15$), or after UDS ($p=0.13$). Pain was not statistically different between groups at baseline ($p=0.17$), after intervention ($p=0.11$), after UDS ($p=0.38$). Secondary outcomes of fear ($p=0.05$) and embarrassment ($p=0.07$) were lower in the mindfulness group. When taken in aggregate, anxiety levels, as measured by STAI-6 were significantly different for all participants mean 12.00 at baseline and 12.46 after UDS ($p=0.05$).

Conclusions: This pilot study does not reflect reduction in patients' anxiety and pain during urodynamics procedure. Fear and embarrassment were noted to be lower in the mindfulness group. Decrease in anxiety was noted in all patients. We suspect confounding effect may have been present in the control group based on self-report of 'relaxation techniques' used by control patients in the quiet, empty room.

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