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Changes in Patient Perceptions and Quality of Life Following Ablation in Patients with Supraventricular Tachycardia

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Abstract

Background—It remains unclear which symptom experiences and aspects of quality of life (QoL) change after ablation in patients with supraventricular tachycardia (SVT).

Objectives—To determine how patient perceptions of symptoms and QoL change following ablation, we used a single group pre-posttest design.

Methods—Patients with SVT (n=52; mean age=41 ± 17 yrs, 65% female) completed generic and disease specific measures, at baseline and one month after ablation.

Results—Significant improvement after ablation was noted in virtually all measures ($p < 0.05$). Patients reported reductions from baseline in frequency and duration of episodes, number of symptoms, and impact of SVT on routine activities. All symptoms decreased in prevalence; however, no symptoms were completely eliminated at one month follow-up. Women reported larger symptom and QoL change scores than men after ablation.

Conclusions—Despite the small sample, statistically significant improvement was found following ablation in a variety of symptoms and QoL indices.

Keywords

Arrhythmia; Quality of Life; Symptoms; Catheter Ablation; Women's Health

Introduction

In this era of patient outcome research, treatment endpoints focused solely on mortality or improvement in physiologic values alone are grossly inadequate.¹ In evaluating the clinical benefit of any therapeutic intervention, measurement of patient sensitive data is crucial to both clinicians and researchers. As technology provides newer interventions, the patients'

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perceptions of and responses to the intervention are key to determining the clinical benefit of such treatments. This is especially true in chronic disease states such as supraventricular tachycardia (SVT) where radiofrequency catheter ablation therapy (RFA) offers a potentially curative therapy instead of life long drug treatment.^{2,3} Supraventricular tachyarrhythmias are relatively common rhythm disorders that refer to a variety of regular, rapid arrhythmias within the atria or atrioventricular junctional tissue. These rhythms are typically caused by the mechanism of re-entry which involves an additional abnormal conduction pathway, a trigger (typically a premature atrial impulse), and an area of slow conduction (delaying conduction timing through the normal circuit enough to allow initiation of SVT by the trigger).²⁻⁵ The vast majority of SVT patients are healthy, young adults with no underlying cardiac or other co-morbid conditions. The SVT episodes cause numerous symptoms such as palpitations, dizziness, syncope, blurred vision, dyspnea, and nausea. Onset and termination of episodes are sudden, with episodes lasting minutes to hours and recurring sporadically at random from once a year to once a day. Patients have been noted to become disabled by actual symptoms or anxiety in anticipation of potential episodes.⁶⁻⁸ Negative affects on abilities to carry out daily activities due to the SVT have also been reported.⁵⁻⁹

In order to make informed choices about treatment options, patients need information about how their symptoms and quality of life (QoL) change following these treatments. Because of the differing types of SVT, one would expect the outcomes to vary based on the underlying mechanism of the tachycardia. The most common type of SVT, atrioventricular nodal reciprocating tachycardia (AVNRT), is more frequently seen in women; whereas atrioventricular reciprocating tachycardia (AVRT) is more frequently seen in men. Atrial tachycardia, another SVT diagnosis less commonly seen than AVNRT and AVRT, is seen with equal prevalence across genders. Specifics of the anatomical differences and clinical features of these types of SVT have been published elsewhere.²⁻⁵

To measure endpoints such as change in symptoms or the impact of the intervention on physical and emotional functioning, use of disease specific instruments is necessary. Although prior researchers have explored the effects of RFA in SVT patients,⁶⁻¹⁵ generalization of the findings from all of these studies is limited due to heterogeneous samples of different types of arrhythmia patients analyzed together; use of multiple different study specific instruments; or a lack of measurement of disease specific patient concerns. The specific concerns of patients living with SVT, their appraisal of how the symptoms affect their life, and how the RFA impacts these concerns have been overlooked in prior reports. Qualitative and retrospective studies have explored concerns of patients specifically related to their SVT episodes.⁶⁻⁹ Yet published RFA outcome reports have failed to use SVT disease specific questionnaires to ascertain what distinct changes follow SVT ablation.¹⁰⁻¹⁵ Two published studies have measured changes in QoL after ablation from both a generic and disease specific approach in an SVT population.^{10,13} However both used a questionnaire designed to reflect concerns of patients with atrial fibrillation, which is very different physiologically than other SVTs.

The purpose of this study was to explore which symptoms and aspects of QoL change following RFA for patients with SVT using disease-specific and generic measures of health-related QoL. Because prior research has presented findings of misdiagnosis of SVT in women¹⁶ and a slower time to referral for SVT ablation in women,^{6,17} we additionally explored whether changes varied by gender or SVT mechanism.

Methods

Design and Sample

All consecutive patients with SVT referred for RFA treatment were screened for eligibility at a 400 bed private community hospital and a 585 bed university affiliated medical center.

Recruitment for this prospective, single group, pre-posttest design study took place in the northern California area over a nine month period of time. Outcome variables were measured at baseline and at one month following the RFA procedure.

Inclusion/Exclusion Criteria

The inclusion criteria for the instrument development and baseline study results have been reported previously.¹⁸ Symptoms of SVT often initially present during the teenage years; therefore, we recruited young adult subjects ≥ 13 years of age, as well as adults. The current study included a subset of those patients who had undergone successful ablation therapy for one of three main types of SVT (confirmed through electrophysiological testing) of atrioventricular nodal reentrant tachycardia (AVNRT), atrioventricular reciprocating tachycardia (AVRT), or focal atrial tachycardia (ATACH). The term, “successful ablation” was operationalized for this study as a procedure including initiation and identification of the clinical tachycardia, as well as effective ablation of the conduction system involved, with an endpoint of non-inducibility of that particular tachycardia at the end of the procedure. Patients undergoing unsuccessful ablations were judged to be clinically different (in the case of non-inducibility during electrophysiological testing, leaving the exact diagnosis unknown) or thought to also be different, and therefore introduce bias, if they had negative feelings following an unsuccessful RFA procedure.

Of 504 consecutive electrophysiology patients at both institutions that were screened for eligibility, 406 did not meet inclusion criteria for the current study (See Figure 1). Exclusion criteria included: severe co-morbid conditions, ineligible arrhythmia diagnoses, non-inducibility at time of electrophysiological testing before the ablation or lack of success in achieving non-inducibility after an attempted ablation procedure, age ≤ 12 years, or non-English speaking. Of the 98 patients who met criteria for the current study, three patients refused and 95 agreed to participate. The response rate for the baseline questionnaire was 70% (69/98). Of the patients completing baseline questionnaires, 52 completed the follow up (75%).

Procedures

Patients were identified from electrophysiology lab schedules the morning of the catheter ablation procedure. The researchers were notified by electrophysiology staff with confirmation of an eligible SVT diagnoses and successful ablation procedure, and after patients were recovered and sedation had worn off. Patients were then approached in the hospital before discharge, given verbal and written information about the purpose and procedures of the study, and asked to participate. Informed consent was obtained as requested by the Investigational Review Board at both medical centers. Researchers were required to obtain written consent from patients and their parents in all individuals < 18 years of age. All eligible patients giving consent were provided with a baseline questionnaire to complete at home and return in a postage paid envelope.

Questionnaire data were collected at baseline and one month after RFA treatment was completed. The questionnaires asked patients to reflect on the prior four weeks of their life before the ablation (baseline) and in the prior four weeks since their ablation procedure (follow-up). Demographic and clinical data were collected at baseline and follow up clinical data were collected at the one month clinic visit after RFA. Approximately three weeks after the procedure, the patients were mailed a post-ablation questionnaire booklet similar to the baseline questionnaire and a postage paid envelope. Efforts to increase response rate included reminder phone calls and mailed postcards if the questionnaires were not returned promptly.

Clinical Outcome Instruments—For our study, QoL was defined as a multidimensional concept encompassing the patients’ perceptions of how their daily life and overall well-being

were affected by living with SVT. The *Patient Perception of SVT* questionnaire was used to assess disease-specific symptoms and the impact of SVT episodes on routine activities.¹⁸ This questionnaire measures frequency and duration of SVT episodes; the presence and bothersomeness of symptoms; impact of SVT on functioning in areas of daily life potentially affected by SVT (ie., physical, social, and emotional functioning; driving; sleep; mood; recreational activities; and work); and restrictions on activities (ie., the number of days patients had to miss work or school) due to SVT.¹⁸

The frequency and duration items ranged from 0–9 for frequency and 0–8 for duration. The number of symptoms could range from 0 (no symptoms) to 19 (all symptoms). Evaluation of how bothered patients were by each symptom ranged from 0–4, with higher scores indicating more bothersomeness. The 10-item Impact of SVT subscale scores ranged from 0 to 100, with higher scores indicating a higher adverse impact of the SVT on their life. Each restricted activity day question ranged from 0–31 days where higher scores showed more days per month affected by SVT. Reliability of the generic QoL subscales in this sample was good as evidenced by Cronbach's alpha scores which ranged from 0.79 to 0.94.

Four generic QoL domains were measured by two subscales from the Medical Outcomes Study questionnaire (health distress and mental health 17-item subscales) and three subscales from the Short Form-36 item questionnaire (SF-36) (physical functioning, vitality, and mental health 5-item subscales).^{19–21} The Health Distress subscale measured the amount of time in last month that the individual felt distressed about their health. Physical function subscale measured the extent to which health limits moderate and vigorous activities in last month. The Vitality subscale measured the amount of time in past month felt energetic, full of pep, worn out, or tired. The Mental Health Index (17-item) was a general index that included measures of depression, anxiety, positive affect, belonging, behavior, and emotions. The Mental Health (5 item) subscale measured the amount of time past month one felt downhearted, happy, calm, or nervous. Scores were transformed to a 0–100 point scale, with higher scores indicating better QoL.^{19,20}

Statistical Analysis—Data were analyzed using SPSS for Windows (version 15). Matched paired *t*-tests were used to compare changes in continuous QoL subscale and symptom scores from baseline to one month after RFA. Wilcoxon matched pairs tests were used to compare differences from baseline to follow-up for the ordinal scores of SVT episode frequency and duration. The non-parametric McNemar chi-square test was used to compare changes in symptom proportions. Logistic regression tests were carried out to analyze any pre-post changes in symptom prevalence by gender.

Two-way ANOVA analyses were used to explore changes in symptom scores by gender and type of SVT. All significance tests were two tailed, and statistical significance was set at < 0.05.

Results

Study Population

The final study sample consisted of 52 patients who returned both questionnaires. To evaluate response bias, we tested differences between those patients who returned both questionnaires (n=52) and those who responded only to the baseline questionnaire (n=17). There were no significant differences between these two groups in all demographic variables, symptom scores, and QoL findings except on the Impact of SVT 10-item subscale score and number of days missed from work/school. The non-responders had higher Impact of SVT scores (49 versus 31, *p* value < .003) and missed more days from work (6 days versus 1 day/month, *p* < .001) than the responders.

The sample was 65% female and the mean age was 41 (± 17) years (range 13–85 years). There were six patients < 18 years of age. As presented in Table 1, the majority of patients were Caucasian (75%), married (61%), and many were employed full time (47%). There was a range of ethnicities, marital and employment states in the sample (Table 1). A low prevalence (8%) of structural heart disease was noted in the sample. Coronary artery disease was noted in one patient (2%), hypertension in two (4%), congenital heart disease in one (2%), and mitral valve prolapse in one patient (2%). No other valvular diseases or cardiomyopathy were observed. Left ventricular function, measured by transthoracic echocardiogram, was normal with a mean ejection fraction of 65% (± 0).

The three major types of SVT were represented: AVNRT ($n=30$), AVRT ($n=16$), and ATACH ($n=6$). Patients reported having experienced episodes of SVT for a mean of 13 (± 14) years at the time of RFA treatment. Mean heart rate during SVT was 175 (± 32) beats per minute (range 115 to 280 beats per minute), with AVRT patients experiencing higher heart rates than patients with AVNRT or AVRT. Women reported having had symptoms of SVT for a mean of 14 $\pm$ 15 years, whereas the men in our sample reported accessing RFA treatment 11 $\pm$ 13 years after their symptoms began ($p=ns$). Patients reported prior antiarrhythmic medication use of a mean of 2 (± 1 ; range 0–4) drugs at baseline. Number of visits to the emergency room for symptoms of the SVT in the year prior to ablation were reported as a mean of 1.5 (± 2.0) visits (range of 0–10; median of 2.5 visits).

Patient Outcomes Following Ablation

Comparison of baseline and follow-up scores from the *Patient Perception of SVT* and generic QoL questionnaires, with 95% confidence intervals are presented in Table 2. Frequency and duration of SVT episodes at baseline was highly variable. However following RFA, the variability for episode frequency decreased (median value was “not at all”) with significant improvement (p value < .05). Duration of episodes also exhibited less variation at follow-up (median “not applicable”) and although improved, the change in duration of episodes did not reach statistical significance.

As seen in Table 2, patients reported significant decreases in number and bothersomeness of symptoms at one month after RFA (p value < .001). The number of symptoms and the bothersomeness of symptoms were reduced by almost 50%.

Also presented in Table 2, the Impact of SVT subscale scores significantly improved after RFA and changes were most notable in the activities most affected at baseline (p value < .001). Of the eight possible activities, the ones most improved were recreational activities, enjoyment of life, mood, work, and sexual relationship with significant other (data not shown).

Surprisingly, days missed from work or school due to SVT actually increased after RFA to 2 days/month. As seen in Table 2, the number of days patients cut down on their normal activities due to the SVT significantly decreased from 7 days/month prior to RFA to 3 days in the month after ablation (p value < .05).

The generic QoL subscales of health distress, physical function, vitality, energy/fatigue, and mental health significantly improved (p value < .05) following ablation therapy as presented in Table 2.

Because of the observed differences in episode frequency and duration, we further explored the prevalence of individual symptoms. Table 3 lists the proportion of the sample endorsing specific symptoms at baseline and after RFA from the *Patient Perception of SVT* questionnaire. As seen in Table 3, the majority of symptoms decreased in prevalence following ablation. Ten of these symptoms significantly decreased in prevalence ($p<.05$) at one month following RFA

(heart flutters, dizziness, sweating, fatigue, trouble concentrating, loss of appetite, hard to catch breath, feeling warm/flushed, chest pressure when heart is racing, and heart racing).

Bothersome scores also significantly decreased after RFA for the following eight symptoms: neck pounding, dizziness, fatigue, loss of appetite, hard to catch breath, feeling warm/flushed, chest pressure when heart is racing, and heart racing. Although decreased, no symptoms were completely eliminated at the one month follow-up.

Exploration of Changes by Gender

After reporting lower scores at baseline, women experienced larger change scores than men following RFA on virtually all measures. On the *Patient Perception of SVT* questionnaire, changes in frequency and duration of SVT episodes were not found to differ by gender. Women reported however, similar Impact of SVT scores, number of days cut down on activities, and days missed from work as men following RFA. Although lower at baseline, women reported similar scores to men at one month after RFA on all other generic QoL subscales.

Exploration of Changes by SVT Mechanism

There were differences noted between SVT groups in symptom and QoL scores. Frequency of episodes remained high after RFA in the ATACH group (2–3 times a week versus once a month), as did duration of SVT episodes (5–10 minutes versus none or a few seconds) when compared to the AVNRT and AVRT patients. The disease specific scores that remained significantly worse for ATACH patients at follow-up included: number of symptoms (7 symptoms versus 5 symptoms, $p < .05$) and Impact of SVT subscale score (38 versus 6, $p < .05$). Significantly lower scores were noted in the ATACH patients in the physical function subscale score as well ($p < .01$). Although improved, patients with ATACH continued to have marked lower scores following RFA on all of the disease specific and generic measures than patients with other types of SVT.

Discussion

The results of our study show improvement in virtually all disease specific and generic QoL measures after ablation. This has been the first study that we are aware of to comprehensively examine QoL in patients with three types of SVT using both SVT disease specific and generic questionnaires. Despite the sporadic, temporary nature of the SVT occurrences, our findings suggest that overall QoL of patients with SVT was significantly impaired by limits on physical, emotional, and social activities prior to RFA.

Following RFA, frequency and duration of SVT episodes dramatically decreased; although some patients continued to report frequency and duration of episodes at follow-up. Seventy percent of the sample reported no episodes at one month following RFA. Although greatly improved following RFA, patients continued to report symptoms that were not completely eliminated by the RFA procedure. For example, continued symptoms of palpitations were reported by up to 48% of the sample at one month following ablation. Clinically many patients describe isolated feelings of “heart flutters” or “heart skips” in the initial few weeks after RFA. These symptoms gradually disappear in the majority of patients over a period of weeks following the RFA procedure. The follow-up questionnaires were completed within 3–7 weeks following the ablation. Whether these continued palpitations were actually short-lived episodes of SVT or isolated premature atrial contractions could only be verified by correlating the symptoms with simultaneous event monitor recordings, which we did not do. The one month follow-up may have been too short for patients whose episodic SVT occurred less frequently than once a month to notice any changes; however the statistically significant improvements do not lend support to this assumption. Perhaps the short one month follow-up detected a false

sense of euphoria from assuming that the SVT had resolved. Longer follow-up could show that these initial results may plateau or change as time passes.

The follow-up data, showing a decreased adverse impact of SVT on activities such as recreational activities, enjoyment of life, mood, work, and sexual relationship with significant other, demonstrate a significant improvement in patients' ability to carry out aspects of daily life after ablation treatment. The dramatic difference at one month post-ablation illustrates the effectiveness of SVT ablation to rapidly help patients return to a more normal life. Patients reported having to cut down on work or activities due to the SVT episodes a mean of one week per month prior to ablation. This is a huge economic and emotional burden for working aged persons in the prime of their lives. The number of days per month patients were required to miss work due to SVT actually increased following ablation, perhaps reflecting time off associated with the RFA procedure and physician appointments. However, the number of days patients cut down on activities significantly decreased at one month after RFA showing a quick return of ability to carry out routine life activities.

All four generic QoL domains also significantly improved. Previous studies have all reported varied improvement in generic QoL and/or cost in the SVT patient post-ablation.^{10–15} Bubien and colleagues reported improvements in their study of QoL post RFA in a mixed arrhythmia patient sample. The study described positive changes in a heterogeneous sample of supraventricular and ventricular patients, using a disease specific symptom questionnaire designed for atrial fibrillation patients and the SF-36.¹⁰ Their sample did not include ATACH patients, and no psychometric details of the new questionnaire or disease specific information about SVT patient symptoms were provided. Other investigators have limited their studies to only one type of SVT (AVRT or AVNRT) or used only generic questionnaires.^{11–15} None of these researchers used a SVT disease specific tool to measure symptoms or aspects of QoL from the patient's perspective.

Our study identified some gender differences in disease specific and QoL scores for patients with SVT. Researchers have noted that women with SVT,^{6,16,17} as in other cardiac conditions,^{23,24} have a more difficult time obtaining a correct diagnosis and accessing invasive treatment. It remains unclear whether the misdiagnosis and delay in accessing treatment for SVT patients stems from a difference in physiological symptomatology, communication differences in how genders describe their symptoms, or providers' gender bias in referring female patients for treatment. The findings from this study offer beginning data to identify differences in physiological symptomatology between the genders. We also report a larger improvement in women's scores on generic and disease specific measures after RFA than in men which indicates that women benefit from RFA at least as much as men, if not more. Therefore, delaying women access to RFA treatment based on a difference in outcomes is groundless. These issues deserve exploration in further studies.

Episodes of SVT appear to be more symptomatic and incapacitating for patients with ATACH than for those patients with AVNRT or AVRT. When symptoms and QoL scores from patients across three types of SVT were compared following RFA, physical function subscale scores, number of symptoms, and Impact of SVT subscale scores were found to be significantly worse ($p < .05$) for those patients with ATACH than for patients with AVNRT and AVRT. Although improved following RFA, patients with ATACH continued to have symptom and QoL scores that remained lower than those of patients with AVNRT or AVRT.

Study Limitations

There is a potential of bias in that the study results were based on a small number of participants (only patients with AVNRT, AVRT, or ATACH and successful ablations), out of a possible 223 that had an RFA procedure. One could argue that the non-responders may have had poor

health to begin with, and question the representativeness of our sample compared to all patients receiving an RFA procedure. It is possible that patients with the worst QoL were excluded, thus, biasing the data. These patients were excluded however, because their clinical course was different (variety of other arrhythmias or co-morbidities) or due to our hypothesis that their QoL scores could not be reliably attributed to changes due to the RFA intervention (multiple ablations in past or an unsuccessful ablation).

Because the clinical sites were tertiary referral centers, subjects included in this study may be more symptomatic than other SVT patients. The subjects in our study were willing to risk undergoing an invasive procedure for definitive treatment of the SVT. This highly motivated, highly symptomatic group of patients may not be representative of the general population of patients with SVT. There was no control group in this study.

The authors acknowledge the potential for recall bias in the baseline survey, due to the fact that these surveys were completed 2–3 weeks following the ablation procedure and patients were asked to respond based on how they felt in the 4 week period prior to ablation. Another limitation is the low response rate at follow-up and the potential factors for this are multifactorial. The questionnaires were given to patients at baseline and then mailed to patients at follow-up, there were no economic incentives used, and the study had no connection to their health care provider. Nevertheless, our paper adds new insight into the experience of how living with SVT changes following ablation treatment and guidance for health care providers in patient counseling and education.

Conclusion

Supraventricular tachycardia imposes a tremendous burden on patients' lives, especially women and patients with ATACH. At one month following the ablation procedure, these patients reported dramatic reductions from baseline in frequency and duration of episodes, number of symptoms, and in impact of SVT on routine activities. Our study provides important information that patients have less restricted activity with an improved QoL following ablation. Health care providers can use these results to better identify patients at risk of a delay in diagnosis or ability to access curative ablation therapy. Specific educational interventions should be developed for patients to aid them in treatment decision making that includes realistic expectations of how symptoms change following ablation therapy.

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Figure 1. Flow chart of recruitment for study

SVT: supraventricular tachycardia, EP: electrophysiology. Of the initial exclusions, 281 were for non-SVT primary diagnoses as follows: cardioversions (35); pacemakers (94); implantable cardioverter defibrillator (71); ventricular tachycardia (73); long QT syndrome (8). Of the secondary exclusions, 125 SVT patients were excluded due to: severe co-morbid conditions (7); ineligible arrhythmia diagnoses for study, such as atrial fibrillation (49), atrial flutter (30), inappropriate sinus tachycardia (6); non-inducibility at time of electrophysiology testing or unsuccessful ablation (11); history of earlier ablation (10); age ≤ 12 years (4); or non-English speaking (8).

Table 1

Demographics in Sample of Patients with Supraventricular Tachycardia (n= 52)

Age (mean $\pm$ sd)		41 ($\pm$ 17) [range 13–85]
Gender:	Male	35% (18)
	Female	65% (34)
Ethnicity:	Caucasian	74% (39)
	Asian	20% (10)
	African American	2% (1)
	Hispanic	2% (1)
	American Indian	2% (1)
Employment Status:	Full time/Part-time	48% (25)
	Not Working/Disabled/Retired	52% (27)
Marital Status:	Married/Living together	63% (33)
	Single/Widowed/Divorced	37% (19)
Years Living with SVT		13 ($\pm$ 14) years
Types of SVT:	Atrioventricular Nodal Reentrant	57% (30)
	Atrioventricular Reciprocating	31% (16)
	Atrial Tachycardia	12% (6)

sd: standard deviation;

bpm: beats per minute;

SVT: supraventricular tachycardia.

Table 2
Comparison of Disease Specific Quality of Life Scores at Baseline and Post Ablation (n =52)

DISEASE SPECIFIC MEASURES **	Baseline mean (sd)	Post Ablation mean (sd)	Change Scores	95% CI	p Value
Average Frequency of SVT episodes (-)	%	%			< .05
Not at all	4	70			
< 2-4 times a year	38	6			
Twice a month	15	2			
2-5 times a week	23	4			
At least daily or more often	20	18			
Average Duration of SVT episodes (-)	%	%			ns
Not Applicable	4	67			
A few seconds to 5 minutes	34	20			
5-15 minutes	14	8			
20-45 minutes	20	0			
Longer than 1 hour	25	4			
Number of Symptoms Score (-)	8.4 (4)	4.5 (4)	-3.9	(-2.3, -5.3)	<.001
Symptom Bothersomeness Score (-)	2.1 (1)	1.4 (1)	-.70	(-.31, -1.0)	<.001
Impact of SVT on Routine Activities (-)	28 (23)	10 (21)	-18	(-13, -26)	<.001
Days Missed Work or School (-)	1 (2)	2 (6)	+1	(2.8, .67)	ns
Days Cut Down on Activity (-)	7 (10)	3 (7)	-4	(-7, -1)	< .05
GENERIC MEASURES *					
Health Distress (+)	63 (24)	82 (22)	+19	(26.6, 10.3)	< .001
Physical function (+)	75 (25)	88 (22)	+13	(22.1, 6.4)	.001
Vitality (+)	43 (25)	59 (23)	+16	(25.8, 9.2)	<.001
Mental Health (5 item) (+)	69(18)	76 (15)	+7	(12.4, 2.3)	.004
Mental Health Index (17-item) (+)	70 (17)	79 (14)	+9	(12.6, 4.6)	<.001

SVT= supraventricular tachycardia;

* = median values; N/A= response choice of "not applicable".

** Negative change score indicates improvement post ablation and positive change score indicates worsening on all scales.

* Positive change score indicates improvement post ablation.

Table 3

Comparison of Symptom Prevalence at Baseline and After Ablation (n=52)

Symptoms in past 4 weeks:	% Baseline	Bothersome Score [^]	% After Ablation	Bothersome Score ^{^^}	Change [*]	p Value
Heart racing	79	2.7	21	1.3	-58	<.001
Fatigue/No energy	77	2.5	42	1.5	-35	.001
Heart flutters	75	1.8	47	1.3	-28	<.05
Dizziness/lightheadedness	68	1.9	29	1.0	-39	<.01
Heart skipping	65	1.8	48	1.5	-17	ns
Hard to catch breath	63	2.6	23	1.1	-40	<.001
Chest pressure as heart is racing	60	2.2	21	1.2	-39	<.001
Headache	59	1.7	40	1.3	-19	ns
Trouble concentrating	56	2.1	27	1.5	-29	<.01
Feeling warm/flushed	56	1.8	26	0.9	-30	<.01
Sweating	45	1.4	27	1.2	-18	<.05
Trouble sleeping	45	1.8	30	1.4	-15	ns
Neck pounding	34	1.9	19	1.0	-15	ns
Loss of appetite	33	1.2	17	0.5	-16	<.05
Blurred vision	23	1.5	15	0.7	-8	ns
Passing a lot of urine	21	1.1	9	0.5	-12	ns
Nausea	20	1.3	19	0.8	-1	ns
Passing out	13	1.6	2	0.3	-11	ns

[^] Bothersomeness score at baseline;

^{^^} Bothersomeness score after ablation;

^{*} negative change score indicates a reduction in symptom prevalence after ablation;

^{**} p value indicates result of McNemar tests in comparison of after ablation prevalence to baseline.