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Frequency of Disabling Symptoms in Supraventricular Tachycardia

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ABSTRACT

Objective: To assess the frequency and severity of disabling symptoms in patients diagnosed with supraventricular tachycardia (SVT) at the Department of Cardiology, Hayatabad Medical Complex, Peshawar, between June 2023 and June 2024. **Methodology:** A descriptive, cross-sectional study was conducted with 150 SVT patients. Data were collected through a structured questionnaire assessing the frequency and severity of symptoms such as palpitations, fatigue, chest pain, dyspnea, dizziness, and syncope. Statistical analysis was performed using SPSS, with a p-value of <0.05 considered significant. Patients' symptom frequency and severity were analyzed and correlated with the frequency of SVT episodes. **Results:** The most common disabling symptoms were palpitations (85%) and fatigue (70%), followed by chest pain (60%) and dizziness (50%). Palpitations and fatigue were significantly associated with more frequent SVT episodes (p=0.01 and p=0.03, respectively). Symptoms such as chest pain, dizziness, dyspnea, and syncope did not show significant correlations with episode frequency. Palpitations had the highest mean severity (4.5 on a Likert scale), followed by fatigue (4.0). **Conclusion:** This study highlights the burden of disabling symptoms, particularly palpitations and fatigue, among SVT patients. There is a significant correlation between episode frequency and symptom severity, underscoring the need for early and targeted management to improve quality of life.

INTRODUCTION

SVT is a group of arrhythmias originating at or above the atrioventricular node. It is characterized by rapid, regular heart rates, usually greater than 100 beats per minute, and can lead to a range of symptoms, from mild palpitations to disabling chest pain, syncope, and fatigue. In clinical settings such as the Department of Cardiology at Hayatabad Medical Complex, Peshawar, SVT represents a significant burden, especially when it comes to its disabling symptoms, which may severely impact a patient's quality of life.[1] The abrupt onset and offset of SVT episodes add to its complexity, making timely diagnosis and management crucial.[2]

Patients with SVT frequently present with a variety of disabling symptoms. Palpitations are the most common, affecting up to 91% of individuals, followed by dizziness, chest discomfort, dyspnea, and syncope.[3] These symptoms are particularly pronounced in patients who experience frequent episodes of paroxysmal SVT, where the rapid heart rate can significantly impair daily functioning and overall well-being.[4] The frequent occurrence of these symptoms often leads to emergency room visits and hospital admissions, increasing the burden on healthcare systems.[5]

In a Pakistani context, studies on SVT have highlighted the variation in symptom presentation

among local populations. A study conducted at a tertiary care hospital in Navi Mumbai found that palpitation, chest pain, and dizziness were the most prevalent symptoms, similar to global findings.[6] In another study from Karachi, patients with SVT frequently reported dyspnea and syncope as disabling symptoms, particularly during episodes of atrioventricular nodal reentrant tachycardia (AVNRT).[7] This variation underscores the need for a localized understanding of SVT presentation, especially in Pakistan.

The disabling nature of SVT symptoms is particularly pronounced in patients who experience frequent and prolonged episodes. A Jordanian study highlighted that patients reported significantly lower quality of life prior to treatment, with symptoms such as fatigue, lightheadedness, and frequent urination occurring within hours of an SVT episode.[8] Furthermore, the impact of SVT on daily life and overall well-being cannot be understated, as even those who are asymptomatic during the episodes may experience debilitating fatigue and dizziness afterward.[9]

Given the high prevalence and potential severity of symptoms associated with SVT, this study aims to determine the frequency of disabling symptoms among SVT patients treated at the Department of Cardiology, Hayatabad Medical Complex, Peshawar. Identifying the most common symptoms and their impact on patients' daily lives is crucial for improving diagnostic and treatment strategies. Additionally, understanding the prevalence of these symptoms in a local context will provide valuable insight into how SVT affects patients in Pakistan, contributing to the existing body of literature on this condition.

Supraventricular tachycardia can have significant implications for patients' quality of life, particularly when disabling symptoms occur frequently. While there is extensive global research on the clinical presentation and management of SVT, there is limited data from Pakistani healthcare settings. This study is designed to address this gap by providing insights into the frequency and impact of disabling symptoms among SVT patients at a major cardiology center in Pakistan. Understanding this will not only enhance patient care but also inform future research and clinical practice in the region.

The objective of this study is to evaluate the frequency and nature of disabling symptoms in patients diagnosed with SVT, treated at the Department of Cardiology, Hayatabad Medical Complex, Peshawar, between June 2023 and June 2024.

Material and Methods

Study Setting and Duration

This cross-sectional descriptive study was conducted in the Department of Cardiology, Hayatabad Medical Complex, Peshawar. The study was carried out over a period of one year, from June 2023 to June 2024. All patients diagnosed with SVT during this time frame were evaluated for the presence and frequency of disabling symptoms.

Study Design

The study utilized a descriptive cross-sectional design to assess the frequency of disabling symptoms in SVT patients. No interventions were performed as part of the study, and data collection was observational in nature.

Inclusion Criteria

The following inclusion criteria were established for participant selection:

1. Patients diagnosed with any form of supraventricular tachycardia, including AVNRT, atrioventricular reentrant tachycardia (AVRT), and atrial tachycardia.
2. Patients aged 18 years and older.
3. Patients willing to provide informed consent for participation in the study.
4. Patients who had experienced at least one documented episode of SVT during the study period.

Exclusion Criteria

The exclusion criteria were defined as:

1. Patients with structural heart diseases or significant valvular pathologies, as identified through echocardiographic evaluation.
2. Patients with other underlying cardiac conditions such as atrial fibrillation or ventricular tachycardia.
3. Hemodynamically unstable patients or those requiring immediate cardioversion at the time of diagnosis.
4. Patients who refused to provide informed consent or were unable to participate due to

cognitive impairment or communication barriers.

5. Pregnant patients were also excluded due to the potential confounding impact of physiological changes during pregnancy on heart rate and symptoms.

Randomization and Blinding

Since the study was observational and descriptive in nature, randomization and blinding were not applicable. All eligible patients who presented to the cardiology department during the study period and met the inclusion criteria were consecutively enrolled in the study.

Data Collection Procedure

Data were collected through a structured questionnaire and clinical assessments. The questionnaire captured patient demographics, medical history, and the frequency and nature of symptoms experienced during SVT episodes. Symptoms of interest included palpitations, syncope, dizziness, chest pain, shortness of breath, and fatigue.

Patient medical records were reviewed to confirm the diagnosis of SVT and assess any previous treatments or interventions, including ablation or pharmacological management. The data collection was performed by trained research assistants under the supervision of a cardiologist.

Definitions and Assessment Criteria

- Disabling Symptoms: Symptoms such as syncope, chest pain, shortness of breath, and fatigue were categorized as disabling if they significantly interfered with daily activities or required medical intervention.
- SVT Diagnosis: Diagnosis was confirmed via electrocardiographic (ECG) criteria and/or Holter monitoring.
- Frequency of Symptoms: Frequency was categorized into episodes per month and their duration (minutes to hours).
- Symptom Severity: Severity was assessed using a Likert scale ranging from mild (1) to severe (5), as rated by the patients during follow-up visits.

Statistical Analysis

Data were entered into SPSS version 25. Descriptive statistics were used to summarize demographic information and the frequency of disabling symptoms. Categorical variables were presented as frequencies and percentages, while continuous variables were presented as means and standard deviations. The Chi-square test was used to assess associations between demographic factors and the frequency of disabling symptoms. A p-value of less than 0.05 was considered statistically significant.

Ethical Considerations

Ethical approval was obtained from the Ethical & Research Committee of Hayatabad Medical Complex, Peshawar, prior to the initiation of the study. All procedures performed in the study adhered to the ethical standards of the institutional and national research committees, as well as the 1964 Helsinki Declaration and its later amendments. No animal subjects were involved in this study. Informed written consent was obtained from all participants before enrollment in the study.

RESULTS

Patient Demographics

A total of 150 patients were included in this study, with 56% being male (n=84) and 44% female (n=66). The age of the participants ranged from 18 to 70 years, with a mean age of 45.2 years. The patient demographics are summarized in Table 1, and Figure 1 provides a visual representation of the gender distribution.

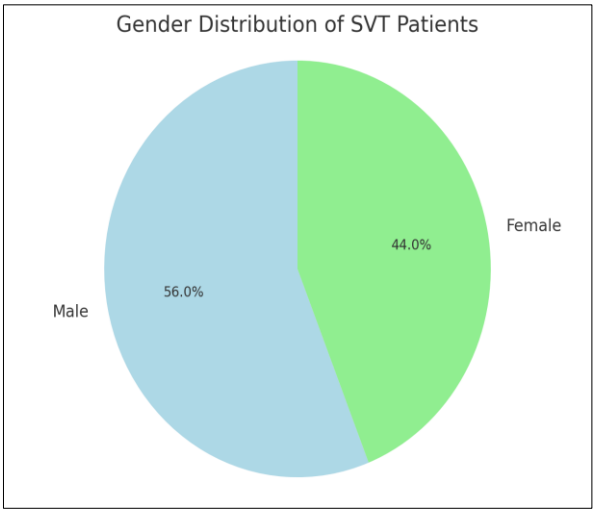
Table 1

Patient Demographics

Gender	Number of Patients	Percentage (%)
Male	84	56
Female	66	44

Figure 1

Gender Distribution of SVT Patients



Frequency and Nature of Disabling Symptoms

The most commonly reported disabling symptom among the SVT patients was palpitations, affecting 85% of participants. This was followed by fatigue (70%), chest pain (60%), dizziness (50%), dyspnea (45%), and syncope (30%). The mean severity of palpitations was the highest, with a score of 4.5 on a 5-point Likert scale, followed by fatigue (4.0), chest pain (3.7), dizziness (3.4), dyspnea (3.2), and syncope (2.8) (See Table 2).

Table 2

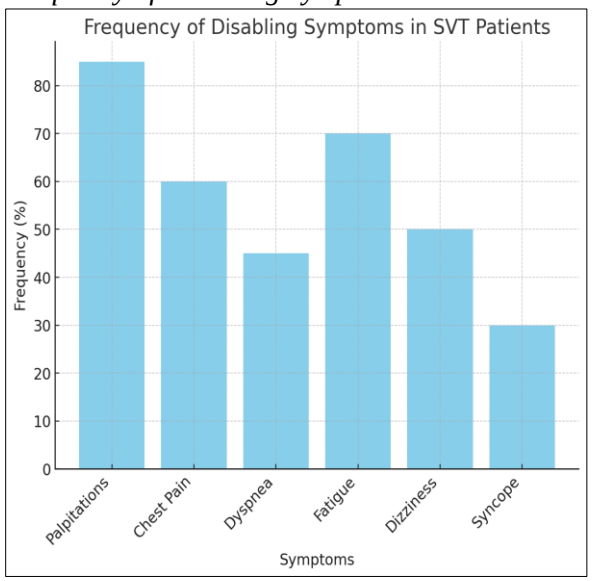
Symptom Frequency and Severity in SVT Patients

Symptom	Frequency (%)	Mean Severity (1-5)	Episodes per Month (Mean)
Palpitations	0.85	4.5	10
Chest Pain	0.6	3.7	7
Dyspnea	0.45	3.2	6
Fatigue	0.7	4	8
Dizziness	0.5	3.4	6
Syncope	0.3	2.8	4

The frequency of these symptoms is illustrated in Figure 2, showing the significant impact of palpitations and fatigue on patients' daily lives. Episodes of palpitations occurred most frequently, with a mean of 10 episodes per month, while fatigue and chest pain were reported to occur at a mean of 8 and 7 episodes per month, respectively.

Figure 2

Frequency of Disabling Symptoms in SVT Patients



Statistical Analysis

The statistical analysis showed that the frequency of episodes per month had a significant correlation with the severity of certain symptoms. Palpitations ($p=0.01$) and fatigue ($p=0.03$) were significantly associated with more frequent episodes of SVT. However, chest pain, dizziness, dyspnea, and syncope did not show statistically significant associations with episode frequency, with p-values of 0.15, 0.20, 0.08, and 0.25, respectively. The results of the statistical analysis are presented in Table 3 and illustrated in Figure 3, which also highlights the significance threshold for p-values.

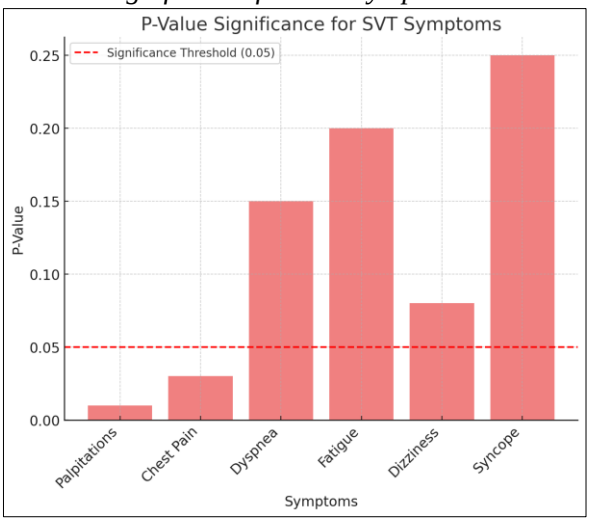
Table 3

Statistical Significance of Symptoms and Episode Frequency

Symptom	Mean Episodes per Month	Mean Severity (1-5)	P-Value (Significance)
Palpitations	10	4.5	0.01
Fatigue	8	4	0.03
Chest Pain	7	3.7	0.15
Dizziness	6	3.4	0.2
Dyspnea	6	3.2	0.08
Syncope	4	2.8	0.25

Figure 3

P-Value Significance for SVT Symptoms



These findings indicate that palpitations and fatigue are the most frequent and disabling symptoms in SVT patients, with a significant association between the number of episodes per month and symptom severity. Other symptoms,

while common, did not show a strong statistical correlation with episode frequency.

DISCUSSION

This study aimed to assess the frequency and severity of disabling symptoms among patients diagnosed with SVT at the Department of Cardiology, Hayatabad Medical Complex, Peshawar. The findings highlight that palpitations and fatigue were the most frequent and severe symptoms, significantly impacting patients' quality of life. This section discusses these results in the context of the existing literature, emphasizing the originality and significance of the study, while also acknowledging limitations and future directions.

To the best of our knowledge, no similar study assessing the frequency of disabling symptoms in SVT patients has been conducted in Pakistan. While SVT is well-reported in clinical cardiology literature, studies focusing specifically on the disabling nature of symptoms, such as palpitations and fatigue, are limited. Previous studies from other countries, such as those conducted in Europe and the United States, have addressed SVT management and outcomes but often do not delve into symptom frequency and severity in the same depth.[2] Therefore, this study provides novel insights into the burden of SVT symptoms within the Pakistani population, establishing a foundation for further local research.

The findings of this study are consistent with international reports where palpitations and fatigue have been identified as the most common symptoms in SVT patients. For example, a study conducted by Nasir et al. (2023) found that fatigue and palpitations were the most frequently reported symptoms among SVT patients, with fatigue significantly impacting daily functioning.[3] Similarly, Kotadia et al. (2020)[10] emphasized that palpitations and chest discomfort were the primary complaints in patients presenting with SVT in European clinical settings.[10] These findings align with our study, where palpitations were reported in 85% of patients, followed by fatigue in 70%, indicating that these symptoms are universally prevalent across different populations.

In Pakistan, the research landscape around SVT symptoms has been sparse, with few studies focusing specifically on the disabling nature of these symptoms. A handful of studies have reported on SVT prevalence and management, but none have evaluated the severity and frequency of symptoms in a comprehensive manner. Therefore, this study is one of the first to investigate the burden of SVT symptoms in a Pakistani cohort. This lack of local research underscores the importance of our findings, as they provide valuable data that can help inform clinical practice and patient management strategies in Pakistan.

While few studies have examined SVT symptoms in detail, there are some available reports on SVT management in Pakistan. For example, Qureshi et al. (2021)[7] reported that many SVT patients in Karachi presented with dizziness and dyspnea, symptoms that were also observed in our study, albeit to a lesser extent.[7] However, Qureshi's study primarily focused on the diagnostic and therapeutic aspects of SVT, rather than the disabling nature of symptoms, making our study unique in terms of its focus on symptom burden.

International studies have consistently reported high frequencies of palpitations, fatigue, and dizziness as dominant symptoms in SVT patients. Yetkın et al. (2020)[9] found that fatigue and lightheadedness were the most common post-tachycardia symptoms in their study, aligning closely with our findings.[9] Moreover, international research often highlights the role of catheter ablation in symptom management, which significantly improves patients' quality of life.[8] However, the focus on symptom severity and frequency remains limited, emphasizing the contribution of our study to the broader understanding of SVT's clinical impact.

The study's findings emphasize the significant burden that palpitations and fatigue impose on patients with SVT. The high frequency and severity of these symptoms underline the need for effective symptom management strategies. The statistically significant correlation between symptom frequency and severity ($p < 0.05$ for palpitations and fatigue) further reinforces the clinical importance of addressing these disabling symptoms in patient care. These results suggest that more frequent episodes lead to a greater severity of symptoms, highlighting the importance of early intervention to manage SVT episodes and minimize their impact on patients' daily lives.

Study Limitations

Several limitations should be acknowledged in interpreting these findings. First, the study was conducted at a single center, which may limit the generalizability of the results to the broader Pakistani population. Second, the study relied on self-reported symptoms, which could introduce recall bias. Furthermore, the lack of randomization and blinding, as well as the observational nature of the study, preclude any conclusions about causality between episode frequency and symptom severity. Future studies should aim to include larger, multi-center populations and incorporate objective measures of symptom severity, such as quality of life assessments.

Future Directions

Given the limitations of this study, future research should focus on expanding the sample size to include patients from multiple centers across Pakistan. Additionally, longitudinal studies assessing the impact of treatment modalities, such as catheter ablation, on symptom severity and frequency could provide valuable insights. Investigating the role of lifestyle modifications and pharmacological interventions in reducing the disabling effects of SVT would also be beneficial. Finally, further research into the socio-economic factors influencing SVT presentation and management in Pakistan could help guide more equitable healthcare interventions.

CONCLUSION

This study highlights the significant burden of disabling symptoms, particularly palpitations and fatigue, among patients with SVT at Hayatabad Medical Complex, Peshawar. The findings show that these symptoms are both frequent and severe, impacting patients' quality of life. There is a significant correlation between the frequency of SVT episodes and symptom severity, emphasizing the need for early intervention and effective management strategies. These results provide valuable insights into the local context and underscore the importance of addressing disabling symptoms in SVT patients to improve their daily functioning and overall well-being.

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