Review article

Management of supraventricular tachycardia in primary care

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Manejo de la taquicardia supraventricular en el primer nivel de atención

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Abstract
Supraventricular tachycardia is one of the most frequently managed rapid arrhythmias in emergency departments; it is generally characterized by narrow QRS complexes (≤ 120 ms) and a heart rate > 100 beats/min. Standard treatment involves electrical cardioversion or intravenous administration of adenosine, beta-blockers, or calcium-channel antagonists. In primary care, however, these resources are often scarce, delaying conversion and exposing patients to progression toward more severe arrhythmias. We reviewed scientific literature (2020–2025) to design a therapeutic algorithm suitable for resource-limited settings. Inclusion-adult studies, systematic reviews, guidelines, and case reports in Spanish/English, out-of-hospital settings; exclusion-surgical scenarios. Findings confirm that the modified Valsalva maneuver is the most effective and safest initial intervention: it restores sinus rhythm in 43 % on the first attempt and up to 60 % after three repetitions space 60 seconds apart. If it fails and no vascular contraindications exist, sequential carotid-sinus massage can be added, providing a practical option where intravenous adenosine, beta-blockers, or calcium-channel antagonists are unavailable, thereby strengthening first-level response capacity.

Keywords
Tachycardia, Tachycardia, Supraventricular, Primary Health Care.

Resumen
La taquicardia supraventricular es una arritmia rápida frecuente en urgencias, caracterizada por complejos QRS estrechos (≤ 120 ms) y una frecuencia > 100 latidos por minuto. El manejo estándar contempla la cardioversión eléctrica o la administración intravenosa de adenosina, betabloqueadores o antagonistas de los canales de calcio. Sin embargo, en la atención primaria, estos recursos suelen ser limitados, lo que retrasa la conversión y expone al paciente a la evolución hacia arritmias más graves. Se revisó la literatura científica publicada entre 2020 y 2025. Se incluyeron estudios originales, revisiones sistemáticas, guías e informes de casos en español e inglés sobre adultos en contextos extrahospitalarios; mientras que, se excluyeron los escenarios quirúrgicos. Los hallazgos confirman que la maniobra de Valsalva modificada es la intervención inicial más eficaz y segura: logra la conversión al ritmo sinusal en 43 % de los casos con el primer intento y hasta 60 % tras tres repeticiones separadas por 60 segundos. Si la maniobra fracasa y no existen contraindicaciones vasculares, el masaje del seno carotídeo puede añadirse de forma secuencial, y aporta una alternativa práctica donde no hay disponibilidad de adenosina, betabloqueadores o antagonistas de los canales de calcio intravenosos y mejora así la capacidad de respuesta del primer nivel de atención.

Palabras clave
Taquicardia, Taquicardia Supraventricular, Atención Primaria de Salud.

Introduction

Supraventricular tachycardia (SVT) is a rapid arrhythmia originating in the atria or the atrioventricular node,[1] and is one of the most common reasons for presentation to emergency departments and primary care settings. Its paroxysmal presentation causes palpitations, dyspnea, and chest discomfort; in persistent cases, it can trigger hemodynamic instability or tachycardia-induced cardiomyopathy. Therefore, early recognition and timely intervention are crucial to prevent serious complications.

In primary care settings, the ability to perform electrical cardioversion or administer intravenous adenosine is often limited. Therefore, it is essential to have low-cost, easily implementable strategies that ensure a rapid response to SVT.

Vagal maneuvers, particularly the modified Valsalva maneuver (mVM), have demonstrated a higher conversion rate than the standard or traditional Valsalva maneuver and carotid sinus massage, making it the first-line option in resource-limited settings.[2] The mVM consists of a sustained expiratory effort for 15 seconds against resistance (e.g., a 10-mL syringe) followed by an immediate change in position to supine with the legs elevated between 45 and 90°, and with continuous telemetric/electrocardiographic monitoring for 60 seconds.[2,3]

When these maneuvers fail or are contraindicated, intravenous β-blockers (esmolol, metoprolol) are usually the recommended alternative;[3] however, most of them are not available in primary care, and oral formulations are of limited use in acute management due to their slow onset of action. In these circumstances, repeated vagal maneuvers or, sequentially, carotid massage may be useful, provided there are no contraindications.

This article is a comprehensive literature review conducted in PubMed, Scopus, and Google Scholar. The following search terms were used: terms (supraventricular tachycardia OR paroxysmal supraventricular tachycardia) AND (Valsalva OR vagal maneuvers OR carotid sinus massage)and related combinations. Original studies, systematic reviews, clinical guidelines, and case reports published in English or Spanish between 2020 and 2025 were included. Studies that did not address the treatment of SVT or that focused on surgical cases were excluded. Following an initial selection based on title and abstract, the relevant articles were reviewed in full text, and data were extracted regarding the effectiveness of vagal maneuvers, the use of β-blockers, and guideline recommendations for out-of- hospital settings.

The objective of this study was to propose a therapeutic algorithm for primary care that integrates the optimal sequence of vagal maneuvers as a feasible, evidence-based alternative to conventional hospital strategies.

Discussion

Mechanism of onset and subtypes

Supraventricular tachycardia is a heterogeneous group of rapid arrhythmias originating in atrial tissue or in the atrioventricular node, at the level of the bundle of His or above it.[1] Its mechanism typically involves reentrant circuits (within or via the AV node) or a focus of ectopic automaticity in these regions.[1]

The main subtypes of SVT include AV nodal reentrant tachycardia (AVNRT), atrioventricular reentrant tachycardia (AVRT, typical of accessory pathways such as Wolff-Parkinson- White syndrome), and focal atrial tachycardias.[1] Among these, AVNRT is the most common form, followed by AVRT.[1]

Epidemiology and clinical significance of its management in primary care

Epidemiologically, SVT affects approximately 0.2 % of the population (2.25 per 1000 people) and is more common in women (2:1);[4] its annual incidence is estimated at around 35 cases per 100 000 people,[5] and the risk increases with age (up to five times higher in older adults compared to younger adults).[6]

Clinically, it typically presents with sudden-onset palpitations, dyspnea, chest tightness, or dizziness, and occasionally with diaphoresis, nausea, or even syncope.[5] SVT increases patient morbidity and can cause hemodynamic deterioration when episodes are very rapid or prolonged, and even tachycardia- induced cardiomyopathy if the arrhythmia persists.

Although in most cases it does not represent an imminent life- threatening condition, in specific situations it can trigger serious events; for example, in the presence of an accessory pathway that pre-excites the ventricles (pre-excited atrial fibrillation), the risk of sudden cardiac death has been documented.[1,7]

Practical First-Line Diagnosis (ECG: Signs Indicating When to Refer)

SVT is, essentially, a rapid tachyarrhythmia originating in the atria or the AV node, usually with narrow QRS complexes (≤ 120 ms) and a rate > 100 beats/min.[6,8]

Several features on the electrocardiogram allow for the determination of the underlying mechanism of SVT.[9] However, in some cases, it is not possible to define it based solely on the ECG, which has led to research using artificial intelligence algorithms to improve its differentiation.[10]

The most decisive finding supporting the diagnosis is the presence of a narrow QRS complex,[6,8,9] which on the electrocardiogram corresponds to a duration of less than 120 ms.[11] Other diagnostic criteria on the ECG include: an elevated heart rate (greater than 100 bpm, with typical values of 150-250 bpm), abrupt onset and termination, and P waves that may be absent, retrograde, or obscured within the QRS complex (Figure 1).

Timely recognition is clinically relevant when the arrhythmia compromises the patient's stability or carries a risk of deterioration. A sustained episode can cause hemodynamic instability (hypotension, syncope, acute pulmonary edema, or ang), in which case immediate electrical cardioversion is indicated.[9,12]

In cases involving an accessory pathway (Wolff-Parkinson-White syndrome), there is a risk of very rapid atrioventricular conduction (e.g., pre-excited atrial fibrillation) that can trigger ventricular fibrillation and sudden death; these situations require urgent management.[9,13]

In addition, persistent or recurrent SVTs can cause functional impairment due to the high burden of symptoms (palpitations, dyspnea, angina, anxiety) and lead to tachycardia-induced cardiomyopathy with ventricular failure if left uncontrolled.9,12 In special populations, the persistent presence of SVTs has been linked to poorer clinical outcomes (e.g., lower survival in patients with pulmonary hypertension).[14,15] Therefore, although many paroxysmal supraventricular tachycardias are benign, their electrocardiographic detection and timely treatment are essential.

Treatment of supraventricular tachycardia

The approach includes vagal maneuvers or adenosine in stable patients and immediate electrical cardioversion if instability is present, followed by long-term strategies (such as AV blockers or catheter ablation) depending on recurrence and risk profile.[9,12]

In primary care, options are more limited, as adenosine is typically reserved for the hospital setting and ablation requires specialized intervention.

Management of SVT in hemodynamically stable patients

Vagal maneuvers

Vagal maneuvers are the first non-pharmacological therapeutic option in hemodynamically stable adult patients with SVT, due to their simplicity, low cost, and favorable safety profile.[2]

Valsalva maneuver

The standard Valsalva maneuver consists of forced exhalation against resistance; typically, air is drawn into a 10 mL syringe for about 15 seconds. The sudden increase in intrathoracic pressure generates a parasympathetic response capable of interrupting the AV node reentry circuit; however, its historical success rate ranges from just 5 % to 20 %.[2]

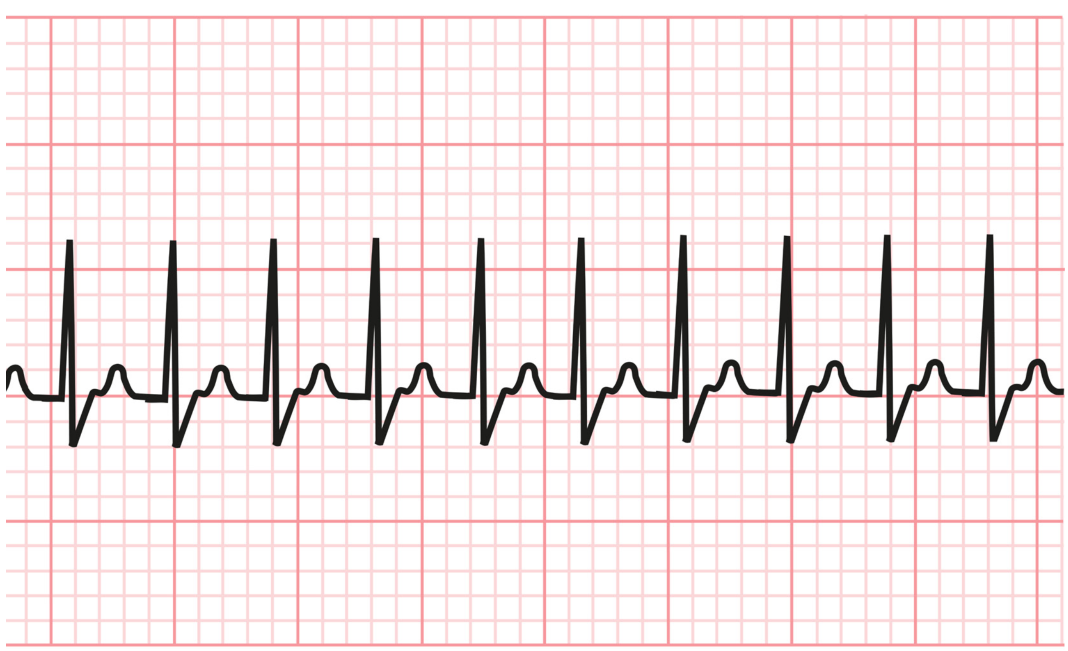

Figure 1. An ECG tracing showing a narrow QRS complex and absence of a P wave, findings characteristic of supraventricular tachycardia.

To increase this efficacy, the mVM was proposed, which adds an immediate postural change: upon completing the effort, the patient is placed in the supine position with the legs elevated to 45° to 90° (Figure 2).

The randomized REVERT trial demonstrated that this modification nearly doubles the likelihood of cardioversion, achieving approximately a 43 % success rate without an increase in adverse events.[16] Consistently, a meta-analysis by Lim *et al*., (2021) confirmed the superiority of mVM over the conventional technique.[17] A multicenter study in China showed similar results, with a 46 % success rate for mVM compared to 16 % for the standard approach, underscoring its utility in emergency departments with limited resources.[2]

Beyond the hospital setting, mVM has proven to be particularly valuable in primary care centers and community units, where intravenous medications are scarce: its early application allows for the resolution of SVT on-site or, at the very least, buys time for patient referral.[18]

Carotid massage

Carotid massage or carotid sinus massage (CSM) is another classic vagal maneuver, although caution is required because it is contraindicated in the presence of significant carotid stenosis, an audible carotid murmur, or a recent history of stroke/transientischemia, due to the risk of cerebral embolism.[19] Cases of ischemic stroke following carotid compression have been reported, particularly in individuals with atherosclerotic plaques.[20]

To perform a carotid sinus massage, first locate the thyroid cartilage; at this level, the bifurcation of the common carotid artery (at the upper edge of the cartilage) is found medial to the sternocleidomastoid muscle. Using the index and middle fingers together, gently slide backward from the cartilage toward the spine until the carotid pulse is felt. Then, firm, constant, and unilateral pressure is applied to the right or left carotid sinus, taking care not to occlude the artery and avoiding massaging both sides at the same time; this pressure is maintained for five to ten seconds while monitoring symptoms, heart rate, and blood pressure (Figure 3).

Regarding effectiveness, the evidence indicates that the Valsalva maneuver, in any of its variants, outperforms CSM. A meta-analysis that included three randomized clinical trials showed that the Valsalva maneuver achieved a significantly higher conversion rate than carotid sinus massage (relative risk 1.82; 95 % CI 1.29-2.57; $p < 0.001$).[21]

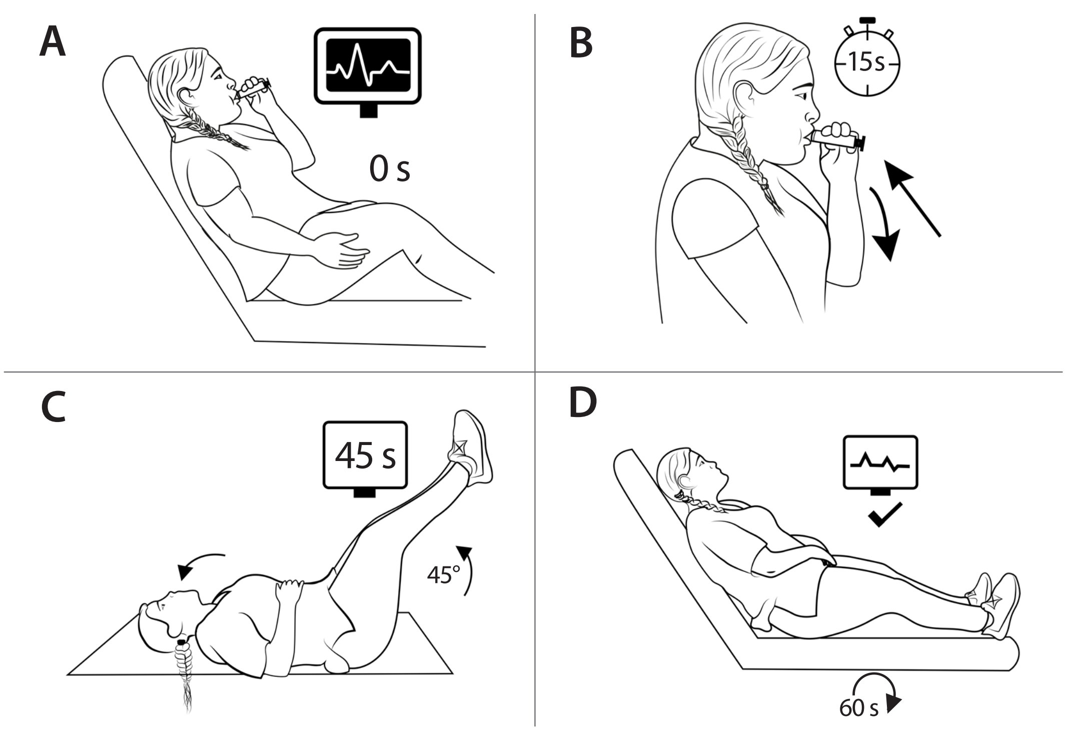

Figure 2. The steps for performing the modified Valsalva maneuver (MVM) are described. A) The patient is placed on a stretcher in a semi-sitting position at 45°. B) The patient is asked to blow air into a 10-mL syringe for 15 seconds in a sustained manner. C) Immediately afterward, the patient is placed in the supine position, and the legs are elevated to an angle of 45 to 90°. D) The heart rate is monitored for 60 seconds, and a return to sinus rhythm is verified.

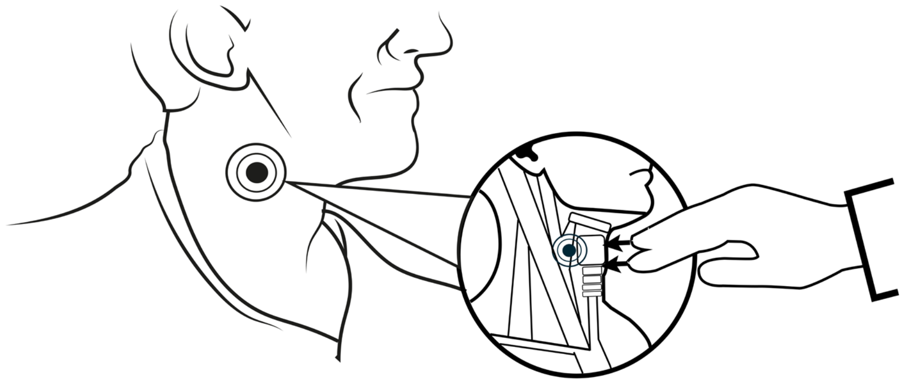

Figure 3. The steps for performing the Carotid Sinus Massage (CSM) are described.

A network meta-analysis of 14 studies showed that CSM had the lowest probability of success, while mVM ranked first in effectiveness, with no significant differences in the incidence of adverse effects among the different maneuvers.[7]

In clinical practice, CSM reverses SVT in approximately 18 % of cases. Its side effects are usually mild and infrequent (dizziness 3.5 %, syncope 1.5 %, transient arrhythmia 3.5 %, and transient neurological complications in less than 1 %).[22] Although safe when performed by trained personnel, carotid sinus massage is less effective than the mVM and the standard Valsalva maneuver.[7]

Modified Valsalva maneuver followed by intravenous β- blocker

Guidelines recommend that, following a failed vagal maneuver, treatment should continue with adenosine and, in selected cases, with an intravenous β-blocker.[3] These drugs are useful for the acute control of arrhythmia. However, their availability is often limited in primary care settings, which restricts their use in this context.

Various β-blockers have demonstrated efficacy in specific contexts; for example, propranolol (non-selective) is commonly used in pediatrics to prevent recurrences of SVT in infants with, although caution is required due to the risk of hypoglycemia.[23]

In the acute setting, intravenous β-blockers such as esmolol or metoprolol may be used in hemodynamically stable patients when vagal maneuvers and adenosine have failed or are contraindicated.[3,24] Their use should be restricted to patients without hemodynamic instability; and avoided in cases of significant hypotension, decompensated heart failure, or SVT with ventricular preexcitation associated with atrial fibrillation, since nodal block in these cases can precipitate circulatory collapse or malignant ventricular arrhythmias.[4,24]

The Valsalva maneuver, both traditional and modified, is a vagal procedure used to treat AV block via accessory pathways. The combination of mVM followed by a β-blocker (metoprolol or esmolol), or the use of no dihydropyridine calcium channel blockers (verapamil or diltiazem), has been demonstrated to be effective in multiple studies and is even recommended in the 2019 European guidelines on the treatment of SVT.[3,25]

Availability and limitations in primary care

At the primary care level, the availability of adenosine and intravenous β-blockers is often limited, even though guidelines consider them therapeutic options following the failure of vagal maneuvers.[3,24] This limitation reduces the pharmacological options for the acute management of supraventricular tachycardia and reinforces the utility of vagal maneuvers as an initial strategy in hemodynamically stable patients.

Sequence of the modified repeated Valsalva maneuver

Repeating mVM is safe and effective in adults with stable SVTs that do not convert on the first attempt. Several studies show that attempting a second or third round increases the conversion rate. For example, Chen *et al.* reported an overall success rate of 53.3 % with mVM (up to three attempts) compared to 20.0 % with conventional Valsalva maneuver[2]. Furthermore, it was observed that most conversions occur on the first attempt, but retries can reverse refractory cases without an increase in adverse events.

A meta-analysis confirmed the greater efficacy of mVM (OR ≈ 4.36) and the reduced need for rescue medication, with a similar safety profile.[27] Thus, in stable patients, it is common to attempt the maneuver once or twice before administering adenosine.

After a failed attempt, it is recommended to wait approximately 60 seconds before repeating the maneuver, to allow the cardiovascular system to return to its baseline state. Although there are no formal studies measuring this interval, clinical guidelines suggest waiting about one minute between vagal maneuvers.[28] In fact, many clinical studies assess conversion one minute after the maneuver is performed. In practice, the maneuver can be repeated up to two or three times, and the patient's hemodynamic stability should always be assessed.

The evidence clearly supports the superiority of continuing with mVM after an initial failure, as opposed to switching to carotid sinus massage. Recent meta-analyses show that the overall conversion rate with mVM is much higher than with standard maneuvers. For example, Abdulhamid *et al.* reported that, after multiple attempts, the rate of return to sinus rhythm was approximately 2.5 times higher with mVM than with standard maneuvers (RR ≈ 2.54; $p < 0.001$).[29] In that same analysis, conversion was achieved in up to 62 % of patients with mVM (approximately 20 % with standard) without an increase in adverse events.[29,30]

According to Lu *et al.*, 2024, a review involving 2527 patients confirmed that the modified Valsalva maneuver significantly increases the conversion rate (RR ≈ 1.80) without differences in safety, even when the maneuver is repeated.[31] Furthermore, the mVM maintains a favorable safety profile even when repeated, as its adverse effects are typically vagal, mild, and transient, such as dizziness, nausea, or brief hypotension. In contrast, carotid sinus massage, although it may also be useful in selected cases, carries a rare but potentially serious neurological risk, including stroke.[30,31]

The sequence of the modified Valsalva maneuver followed by carotid sinus massage

Although the protocol of attempting mVM first and then CSM in the emergency department is common and may be effective for reversing SVT in hemodynamically stable adults,[32] there are no studies directly comparing this strategy with single maneuvers. The available evidence supports mVM as the preferred initial intervention.[3,27,32]

As mentioned, among the maneuvers, the mVM has the highest success rate. Therefore, it can be estimated that sequentially combining the mVM and CSM increases the overall rate of vagal cardioversion by approximately 50 %,[32] thereby avoiding the need for medication in about half of the cases.

Performing both maneuvers simultaneously is not standard practice nor is it supported by evidence; furthermore, bilateral carotid compression should be avoided due to neurological risk, so guidelines recommend applying them sequentially and with due precautions.[3]

Sequence of vagal maneuvers in primary care

In hemodynamically stable patients with supraventricular tachycardia, the guidelines of the American Heart Association (AHA) and the European Society of Cardiology (ESC) recommend starting with vagal maneuvers.[8,33] The (mVM is the preferred option. If the first attempt fails to restore sinus rhythm, the mValsalva maneuver may be repeated at 60- second intervals. After three failed attempts at the mVM, carotid sinus massage may be attempted, provided there are no carotid murmurs or vascular disease.[33]

The carotid sinus massage produces a vagal stimulus similar to that of the mVM and reverse SVT in a small percentage of cases (5 %-30 % according to various series).[21,33] However, in the absence of pharmacological options, and provided there are no contraindications, the procedure may be repeated on the non-dominant side to attempt to terminate the arrhythmia. The complete flowchart is shown in Figure 4.

Heterogeneity of the studies

The evidence supporting mVM shows significant heterogeneity in population, setting, technique, and outcome measurement, which limits its extrapolation to the primary care setting.

Regarding population and setting, trials were primarily conducted in hospital emergency departments with hemodynamically stable adults, while representation of out-of-hospital settings is limited.[16,17,27,29,31]

Regarding technique, although the core of the protocol is consistent, a standardized expiratory effort of approximately 40 mmHg for 15 seconds followed by supine positioning with leg elevation, there are variations in the device (10-mL syringe versus pressure gauge), in the elevation angle (45-90 degrees), and in whether one or two retries are allowed at intervals of approximately 60 seconds.[16,17,27,29,31]

In terms of measurement, some studies defined success as conversion within one minute, while others required maintenance of sinus rhythm for several minutes. Furthermore, the comparators were not uniform, as some studies compared the modified Valsalva maneuver with the standard Valsalva maneuver, and others with alternative respiratory techniques, which adds variability to the conversion rates. Despite this, the modified Valsalva maneuver consistently outperforms the standard Valsalva maneuver without any indication of increased risk[16,17,27,29,31]. (Table 1)

Advances

The evidence is consistent, as mVM doubles the probability of cardioversion compared to the standard Valsalva maneuver in out-of-hospital settings, reduces the need for medications, and maintains a favorable safety profile[16,17,27,29,31]

This effect is explained by the combination of standardized expiratory effort and postural change; by establishing clear parameters, this facilitates its teaching and use with minimal resources, for example, a 10 mL syringe, even by non-specialized teams.[2,18]

Limitations

Despite favorable results, the studies are not identical to one another. They vary in the duration of the effort, the angle of leg elevation, and the intervals between attempts. The devices also differ in the devices used: a 10 mL syringe (with variability even within the same brand, resulting from poor sealing and/or an increase or decrease in the resistance of the selected syringe) versus a manometer. Furthermore, the populations included and the exact moment at which success is defined vary.

Furthermore, there is a lack of long-term outcomes and robust analyses in high-risk subgroups, such as older adults or individuals with carotid disease, as well as formal evaluations of implementation in rural areas.[16,17,27,29,30,31]

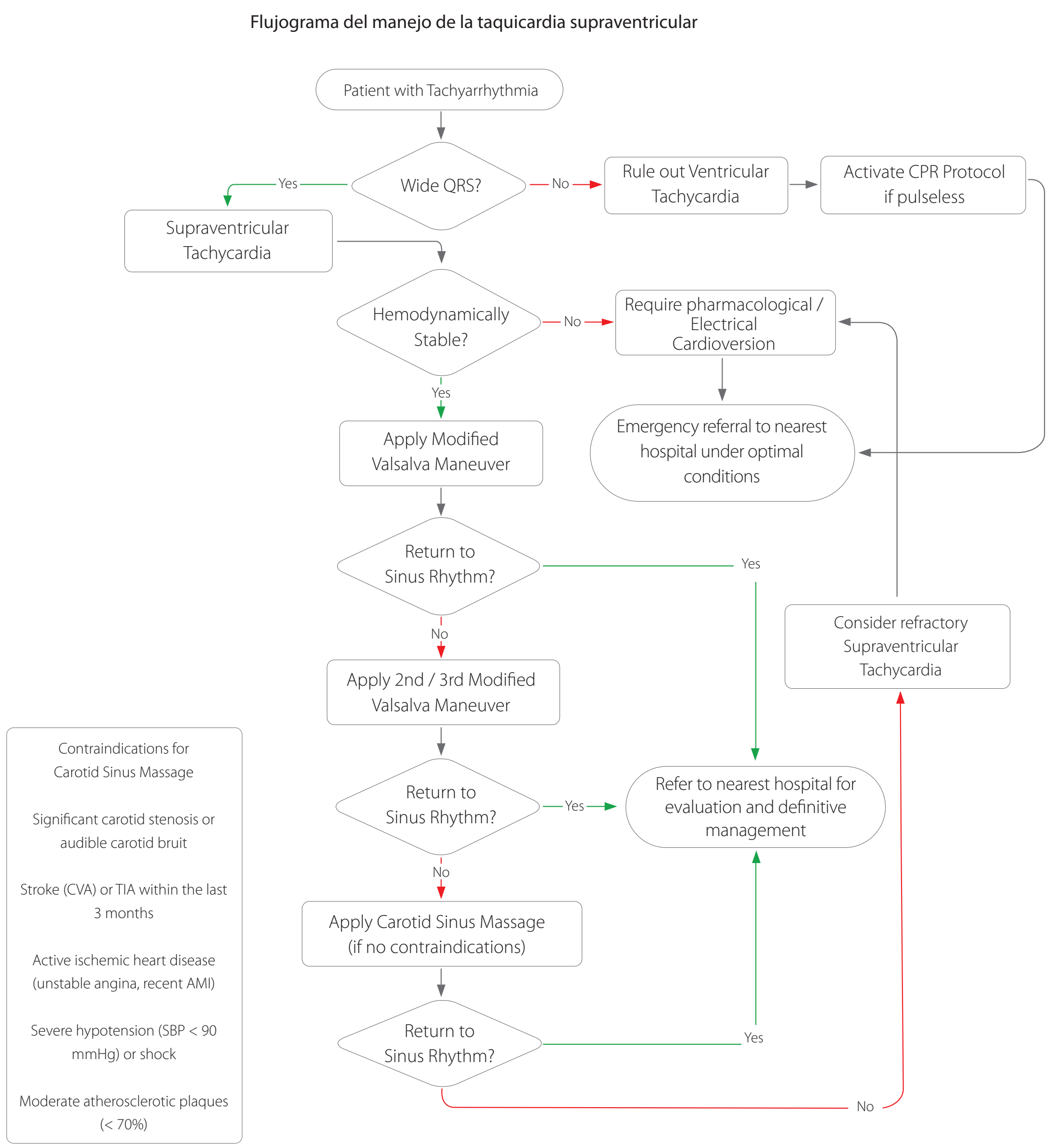

Figure 4. Flujograma de atención de la STV en el primer nivel.

Table 1. Heterogeneity of studies on the MMV

Study (year)	Design / Scope	Population	Procedure protocol (technique)	Relevant findings	Heterogeneity/Applicability
Appelboam *et al*., REVERT (2015)[16]	Multicenter randoized clinical trial; in ten emergency departments in the United Kingdom	Hemodynamically stable adults with regular SVT	Standardized stress test: 40 mmHg for 15 seconds (inflating a in a syringe/manometer), followed by supine position with legs elevated to 45° and reevaluation after one minute	mVM improved conversion compared to SVM (≈ 43% vs. 17% at one minute). No serious adverse events reported.	Highly standardized technique; prior training required; requires a 10 mL pressure gauge or syringe and two people to elevate the legs.
Lim *et al*. (2021)[17]	Randomized trial in the Emergency Department in Singapore	Adults with stable VSD	"REVERT-type" mVM (≈ 40 mmHg/15 s plus supine position with legs elevated and reassessment after one minute) versus an alternative respiratory technique in the supine position	Similar conversion rates between techniques in a limited sample; no major events.	Emphasizes that simple logistics and low cost favor implementation.
Abdulhamid *et al*. (2021)[29]	Systematic review with meta-analysis	Comparison of MMV versus VE in adults	Summarizes variations in mVM (pressure, duration, angle, devices) and minute-by-minute monitoring	mVM superior to SVM in conversion; no increase in adverse effects (low safety heterogeneity).	Notes variability in pressure/time/angle and in devices (syringe vs. pressure gauge).
Lodewyckx and Bergs (2021)[27]	Review protocol/objecti ve	Adults in emergency/ out-of-hospital settings	Defines the mVM as an expiratory effort lasting approximately 15 seconds, followed by supine position with legs elevated to approximately 45°, and assessment after one minute	Emphasizes measuring conversion at one minute, safety, adenosine use, length of stay, and admissions; proposes domains for analyzing heterogeneity.	Useful for mapping sources of heterogeneity (context, technique, measurement). Provides a framework for comparability between studies.
Lu *et al*. (2024)[31]	PRISMA meta-analysis (multiple RCTs, international)	Adults with stable VSD	REVERT-type mVM (≈ 40 mmHg/15 s, supine position + legs elevated, reassessment after one minute)	mVM significantly increases the conversion rate compared to SVM, with similar safety; low overall heterogeneity.	Includes RCTs from different countries, including Asia; presents a similar protocol, but operational differences persist (angles/ devices).
Wang *et al*. (2020)[30]	Randomized clinical trial (China)	Adults with TPSV	Standardized mVM (similar to REVERT); also details economic evaluation	Standardized mVM with higher cardioversion success rates and economic benefits (lower use of drugs/resources); no serious events.	Provides a relevant cost-effectiveness perspective for primary care/rural settings; suggests savings due to reduced need for pharmacological rescue.

mVM: modified Valsalva maneuver.
SVM: Standard Valsalva maneuver.

Clinical Implication

For primary care, mVM is particularly attractive due to its low cost and minimal requirements: a stretcher, a 10 mL syringe or a simple sphygmomanometer, and two people to elevate the legs.

Performance improves when the team follows a clear protocol (target pressure, duration of effort, elevation angle, and reassessment after one minute), when brief training is provided, and when the results of one or two attempts are recorded before escalating management. Within this framework, it is reasonable to prioritize mVM and, if there are no contraindications, to consider carotid sinus massage as the next step, while maintaining defined referral pathways. In practice, these steps typically shorten resolution times and prevent unnecessary referrals without compromising safety.[17,27,29,30,31]

Management of VTS in Hemodynamically Unstable Patients

Hemodynamically unstable SVT must be treated rapidly with synchronized cardioversion and not with vagal maneuvers.[25] Attempting vagal maneuvers is considered contraindicated when the patient is unstable, for example, with a systolic pressure < 90 mmHg.[25,34]

Among antiarrhythmic drugs, ultra-short-acting intravenous adenosine has proven effective even in patients with hemodynamic instability.[35] Other antiarrhythmics (verapamil, IV β-blockers) are not suitable in unstable patients due to their hypotensive effect. Guidelines advise against IV verapamil/diltiazem in cases of hypotension or severe heart failure, and IV beta-blockers in decompensated heart failure.[3]

In unstable patients, the primary goal is cardioversion or adenosine, not vagal maneuvers or drugs that may exacerbate instability. Therefore, the only real option is transfer to a specialized center or hospital equipped with these resources.

Among the limitations of this study is the existence of significant heterogeneity in mVM protocols (duration of exercise, number of attempts, posture, use of a 10-mL syringe, intervals between attempts), in the included populations, and in the outcome criteria (early conversion is often assessed, and long-term clinical outcomes are lacking).

Furthermore, due to the narrative nature of this review, no formal assessment of the risk of bias in the included studies was conducted. Additionally, since most of the evidence comes from hospital emergency departments, the applicability of these findings to primary care still requires further study, especially in rural areas or settings with very limited resources.

Considerations Regarding Access to Electrocardiographs for Diagnosis

In El Salvador, health units with greater diagnostic capacity (intermediate and specialized) typically have electrocardiographs available; similarly, some emergency care centers operating in coordination with Solidarity Fund for Health (FOSALUD) may offer basic monitoring via a vital signs monitor.[36] However, this availability is not uniform at the primary care level, and certain basic units and those in rural areas may lack electrocardiography, which increases diagnostic difficulty. In these cases, the most appropriate course of action is to refer the patient to a facility with greater diagnostic capacity or to the secondary care level, in order to confirm the diagnosis via electrocardiogram and guide definitive management.

Conclusion

The modified Valsalva maneuver is the most effective and safest initial strategy for reversing SVT in hemodynamically stable adults when the necessary supplies for electrical or pharmacological cardioversion are not available; it reverses the arrhythmia in approximately 43 % of cases on the first attempt, and in up to 60 % after three attempts spaced 60 seconds apart. If VMm fails and the patient has no contraindications, MSC may be added as a sequential step; this combination offers a reasonable alternative in settings lacking intravenous medications (adenosine, β-blockers, or calcium channel blockers), although the evidence supporting its efficacy is still limited, and the adoption of these steps at the primary care level requires local protocols, adverse event reporting, and staff training.

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