

Diagnosis and Management

of

Ventricular Tachycardia (VT)

Standard Operating Procedure

Special Region (1)

Union of Myanmar

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1. PURPOSE

To provide a rapid, structured, and safe approach for the diagnosis and management of Sustained VT and Non Sustained VT(NSVT), ensuring early identification of instability, prompt treatment, and prevention of deterioration.

2. SCOPE AND EXCLUSION

Included: Sustained VT and NSVT.

Excluded: Pulseless VT (manage under Cardiac Arrest SOP).

3. DEFINITION

- **Sustained VT** is defined as:
A ventricular tachycardia lasting ≥ 30 seconds OR requiring earlier termination due to hemodynamic instability
- **Non-sustained VT (NSVT)** is defined as:
 - ≥ 3 consecutive ventricular beats
 - Lasting < 30 seconds

And terminating spontaneously (without intervention)

- Monomorphic VT: same morphology.
- Polymorphic VT: varying morphology.

4. ETIOLOGY

Ischemic heart disease, cardiomyopathy, electrolyte imbalance (K, Mg), drugs, myocarditis, idiopathic.

Causes of sustained VT

Category	Causes	Clinical Clue
Ischemic Heart Disease	Previous MI (scar-related re-entry), acute MI	Most common cause
Cardiomyopathy	Dilated (DCM), Hypertrophic (HCM), ARVC	Reduced EF, structural abnormality
Heart Failure	Severe LV dysfunction	EF $\downarrow$, recurrent VT
Myocarditis	Viral myocarditis	Young patient, recent infection

Category	Causes	Clinical Clue
Structural/Scar-related	Post-cardiac surgery, fibrosis	History of surgery
Electrolyte Abnormalities	Hypokalaemia, Hypomagnesemia	ICU / diuretic use
Drug/Toxin-Induced	Digoxin toxicity, antiarrhythmics	Drug history
Others	Infiltrative disease (sarcoidosis), congenital heart disease	Rare but important

Causes of non-sustained VT

Category	Causes	Clinical Clue
Ischemia	Transient ischemia, unstable angina, NSTEMI	Very common
Structural Heart Disease	Early cardiomyopathy, LV dysfunction	Risk marker
Electrolyte Imbalance	Hypokalaemia, Hypomagnesemia	Reversible
Sympathetic Overactivity	Sepsis, stress, thyrotoxicosis	Tachycardic state
Drug-Induced	Beta-agonists, digoxin	Medication history
Idiopathic VT	RVOT VT (normal heart)	Young, benign
Post-Exercise / Stress	Catecholamine surge	Exercise-related

Causes of polymorphic VT

A. Prolonged QT interval – Torsades de Points

Category	Causes	Clinical Clue
Drugs (MOST COMMON)	Macrolides, fluoroquinolones, antipsychotics, antiarrhythmics	QT prolongation
Electrolytes	Hypokalemia, hypomagnesemia, hypocalcemia	ICU / diuretics
Congenital	Long QT syndrome	Young, recurrent syncope
Bradycardia	AV block	Slow heart rate
Others	Starvation, hypothyroidism	Chronic illness

B. Normal QT interval

Category	Causes	Clinical Clue
Drugs (MOST COMMON)	Macrolides, fluoroquinolones, antipsychotics, antiarrhythmics	QT prolongation
Electrolytes	Hypokalemia, hypomagnesemia, hypocalcemia	ICU / diuretics
Congenital	Long QT syndrome	Young, recurrent syncope
Bradycardia	AV block	Slow heart rate
Others	Starvation, hypothyroidism	Chronic illness

5. CLINICAL PRESENTATION

Mild: palpitations.

Moderate: chest pain, dyspnea.

Severe: hypotension, shock.

6. INITIAL APPROACH

Treat all wide-complex tachycardia as VT.

Check pulse: if absent → Use Cardiac Arrest SOP.

7. HEMODYNAMIC CLASSIFICATION

Unstable: hypotension, shock.

Stable: none of the above.

8. INVESTIGATIONS

ECG, electrolytes, troponin, echocardiography, CXR.

9. MANAGEMENT

Unstable VT → synchronized cardioversion.

Stable VT → amiodarone.

Polymorphic VT → magnesium.

NSVT → treat cause.

LONG-TERM MANAGEMENT

- Beta-blockers, amiodarone, ICD if available.

10. SPECIAL NOTES

Treat as VT unless proven otherwise. Avoid verapamil. Correct electrolytes.

11. COMPLICATIONS

VF, shock, sudden death.

12. References

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(Updated regularly; evidence-synthesized clinical guidance)