

## Echo-cardiographic and electrocardiogram findings in dengue patients

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### Introduction:

Cardiac manifestations may occur in dengue. Its detection and management are important for making appropriate clinical management and follow-up decisions.

### Objectives:

We sought to evaluate the cardiac complications of DI's and to profile the duration for their recovery.

### Materials & Methods:

A prospective study was done among patients with confirmed DI admitted to our institution between December 2017 and August 2019. DI was diagnosed based on a positive dengue-NS1 or dengue-IgM test result. Dengue-IgG was tested on all patients. Clinical information was obtained from the electronic medical record and statistical analyses were performed using SPSS version 23 and STATA version 12.

### Results:

- Information was collected on 167 patients, Female - 85 (50.9%). The commonest age category was 31 to 50 years - 70 (41.9%).
- Cardiac involvement was noted in: based on abnormal ECG changes - 35(20.9%)[severe dengue:28 (73.7%)] and Echo findings - 27(16.2%)[severe dengue: 22( 57.9%)].
- The commonest ECG abnormality was sinus bradycardia [male: 9 (10.9%); female: 7 (8.2%) ] and systolic dysfunction was the commonest Echo abnormality [male: 12 (14.6%); female 5 (5.8%)].
- Patients with Dengue ± warning signs and ECG and Echo abnormalities needed at least 3 weeks until recovery.
- Patients with severe dengue with ECG and Echo abnormalities needed at least 4 weeks until recovery.
- The longest recovery time (25.1±6.7 days), following cardiac involvement was in the severe dengue group, who were dengue-NS1 and dengue-IgG positive.
- No long-term medications were needed and there were no deaths.

### Cardiac abnormalities in patients with dengue infection, grouped by clinical severity

Clinical findings	Clinical severity, number of patients (%)		P-value*
	Dengue ± warning signs	Severe dengue	
Total	129	38	
ECG			
- Normal	122 (95.3)	10 (26.3)	0.001
- Abnormal	7(5.4)	28 (73.7)	0.001
• Sinus tachycardia	1(0.8)	4 (10.5)	0.002
• Sinus bradycardia	4 (3.0)	12 (31.6)	0.002
• RBBB	1(0.8)	2 (5.3)	0.07
• 1 <sup>st</sup> degree AV block	1 (0.8)	4 (10.5)	0.002
• ST segment depression	0 (0.0)	3 (7.9)	N/A
• T wave inversion	0 (0.0)	3 (7.9)	N/A
ECHO			
- Normal	124 (96.1)	16 (42.1)	0.001
- Abnormal	5(3.9)	22( 57.9)	0.001
• Systolic dysfunction	4 (3.1)	13 (34.2)	0.001
• Diastolic dysfunction	1 (0.8)	5 (13.2)	0.004
• Pericardial effusion	0 (0)	4 (10.5)	N/A

### Conclusions:

A significant proportion of severe dengue patients had cardiac involvement and resolves spontaneously within three to four weeks. Secondary dengue patients with cardiac involvement had a more prolonged recovery. Further studies are required to explore the biological basis for this finding