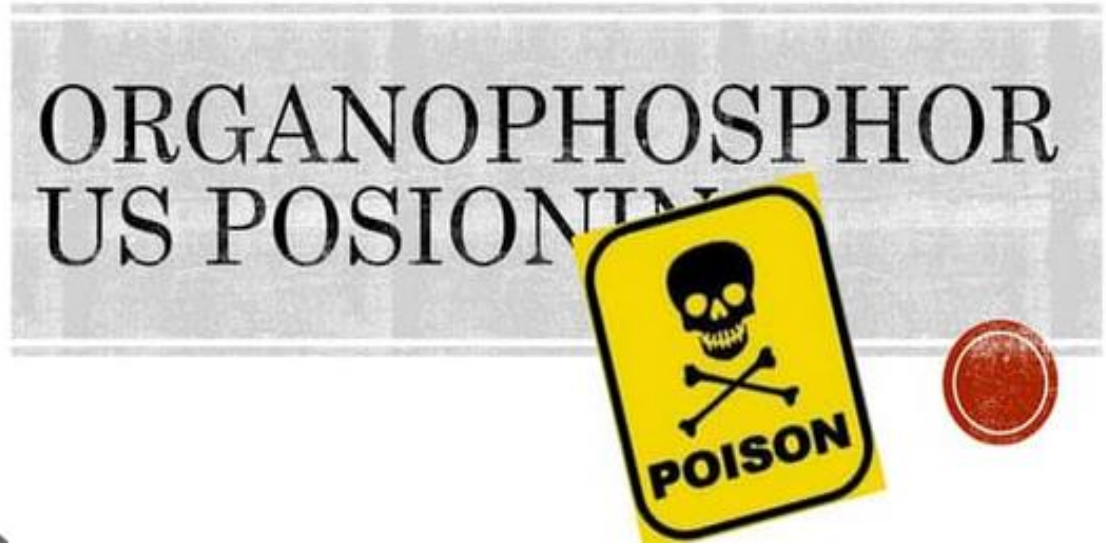
Peradeniya Organophosphorus Compound Poisoning Score, Glycemic Status and Electrocardiographic Changes at the Time of Admission in Organophosphorus Compound Poisoning and Their Correlation with Severity and Clinical outcome



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Not beneficial, rather increases chances of Aspiration Pneumonia & Deaths*

Stomach wash room

Introduction

Acute organophosphorus compound (OPC) poisoning is a serious public health issue,especially in the rural areas. Peradeniya organophosphorus poisoning (POP) scale was developed to assess the severity of OPC poisoning.Metabolic factors like dysglycemia also has an association. Cardiovascular effects of acute OPC poisoning are also common.

Rationale of the study

During encounter of OPC poisoning early recognition of severity is an important aspect in patient stratification and management . POP scale, ECG change and glycemic status have been studied as a predictive marker in OPC poisoning.This scoring system and tests are simple and cheap. In our country setting it would be cost effective as well as could be interpreted easily by the physician at all level.

Objectives

General objective:

To investigate the predictive value of POP score, ECG and blood sugar at admission for clinical outcome in OPCs poisoning

Specific Objectives:

- To determine the severity of poisoning at admission by POP scale
- Assess the glycemic status
- Describe the ECG findings at admission
- Observe the in hospital outcome it terms of need for ICU referral, length of hospital stay and death
- Correlate the blood glucose level, ECG changes and POP score with the clinical outcome.

Materials and Methods

Study design:

Hospital based prospective observational study.

Place of study:

Department of Medicine, Chattogram Medical College Hospital, Chattogram, Bangladesh.

Study period:

Six months from 1.1.2020 to 30.6.2020.

Materials and Methods

Study population:

Patients of documented OPC poisoning admitted in different Medicine Units of CMCH

Sampling technique:

Consecutive sampling

Sample size:

50 sample was taken in this study

Selection criteria

Inclusion Criteria:

- Clear history of ingestion of OPC (irrespective of the nature of poisoning—deliberate self-harm, homicidal or otherwise—and regardless of brand of OPC and whether or not a sample was provided for identification

- Age above 12 years and both sexes

Exclusion Criteria:

- Patients or the relatives donot give informed written consent
- History of known Diabetes Mellitus
- Already treated at other centers and was referred
- Pre-existing cardiac co-morbidity
- Who had consumed alcohol, drugs, mixed poisoning that could affect the glycemic status of the patients.
- Pregnancy (Pregnancy excluded by history taking and knowing LMP and physical examination)

Variables

- Socio-demographic variables:

Age, Gender, Educational Status, residence, Occupation, Religion, Monthly family income

- Exposure related variables:

Nature, reason and route of poisoning, time lag between exposures to admissions, pre-admission treatment.

- Clinical variables:

Consciousness level, pupil, pulse, blood pressure, respiratory rate, fasciculation, any h/o convulsion

- Investigations related variables:

RBS, ECG.

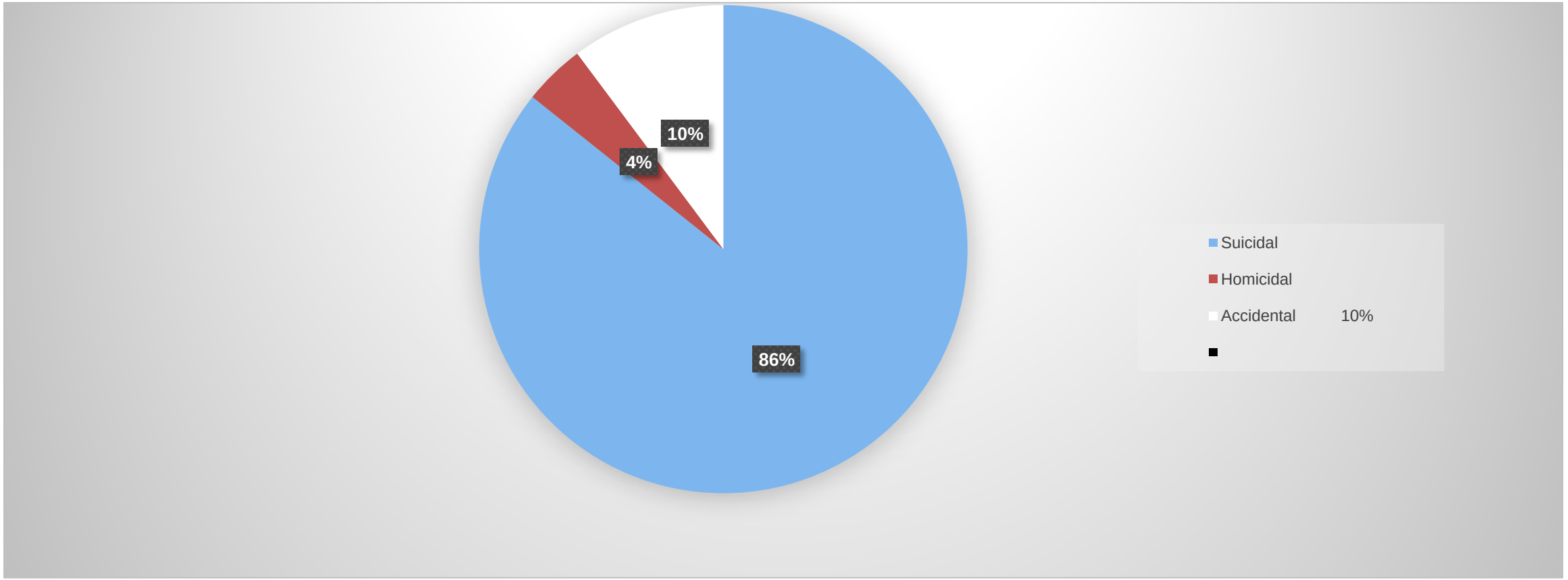
- Variables related to measure outcome:

Death, Intermediate syndrome, Need for ICU and ventilation, length of hospital stay

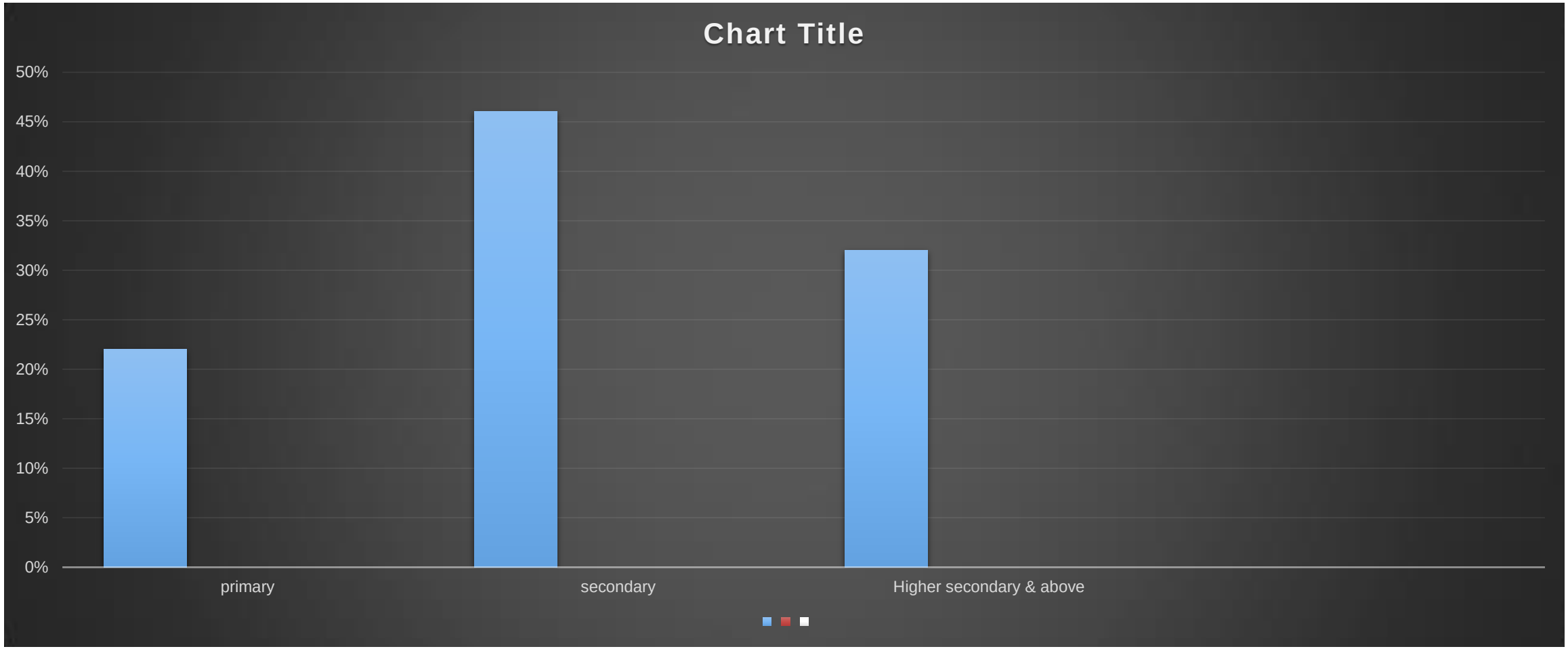
POP scale for severity assessment of OPC poisoning	Score
Miosis	
Pupil size >2 mm	0
Pupil size <2 mm	1
Pupil size: pin point	2
Fasciculation	
None	0
Present but not continuous	1
Genarlized and continuous	2
Respiration	
Respiratory rate ≤20 min	0
Respiratory rate>20 min	1
Respiratory rate>20 min with central cyanosis	2
Bradycardia	
Pulse rate >60 min	0
Pulse rate 41-60 min	1
Pulse rate <40 min	2
Level of consciousness	
Conscious and rational	0
Impaired, respond to verbal command	1
Impaired, no respond to verbal command	2
If convulsion present, add 1	
Total:11; Mild: 0-3; Moderate: 4-7; Severe: 8-11	

RESULTS

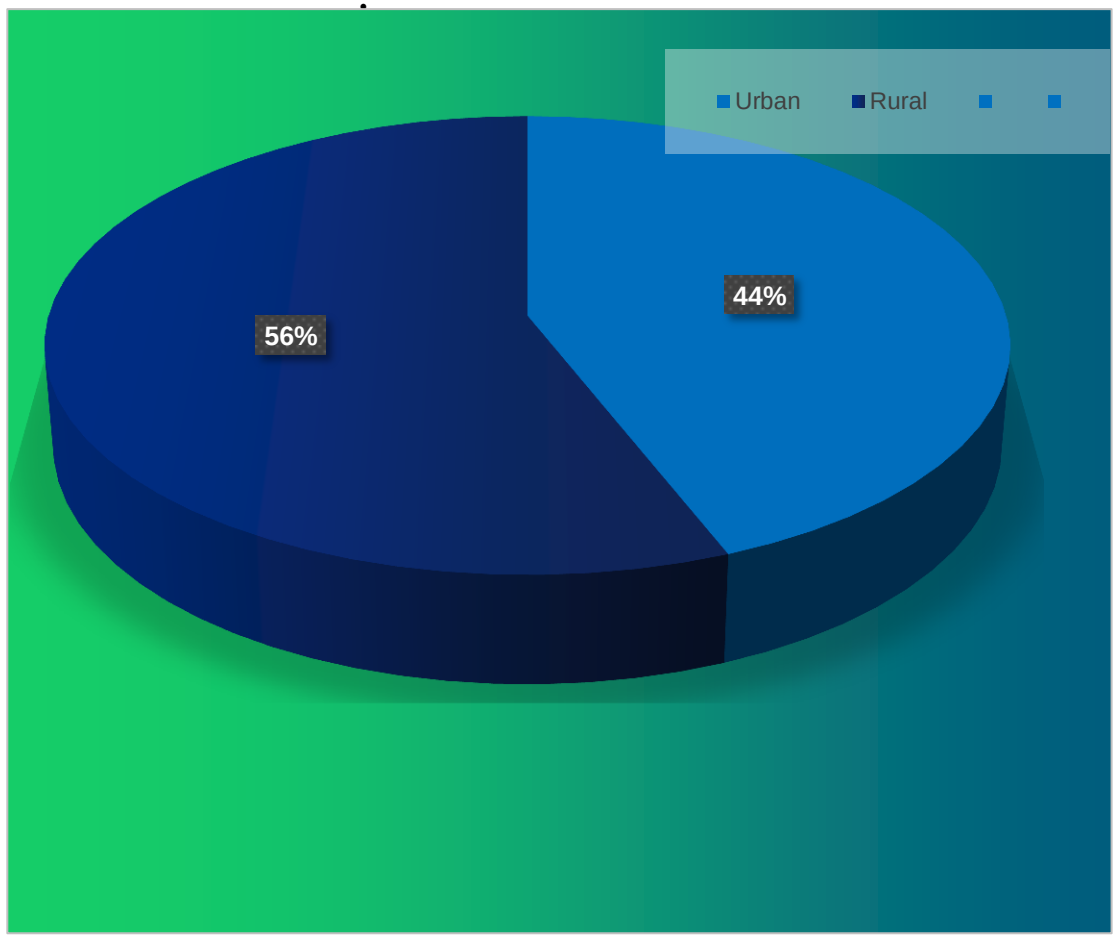
Distribution of the patients by their exposure related variables

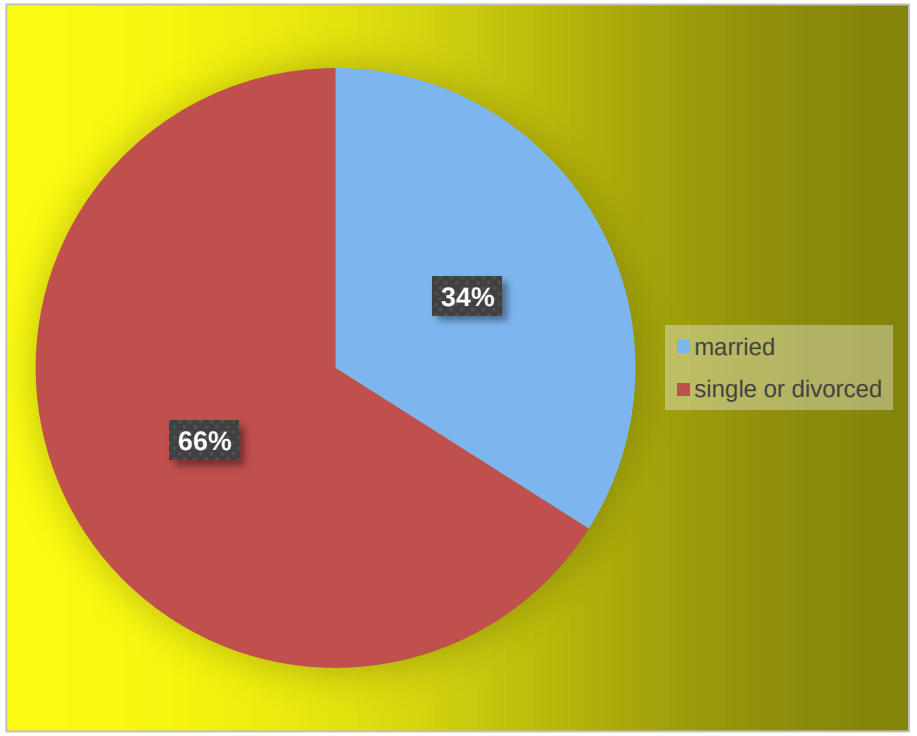


Distribution of the patients by their education

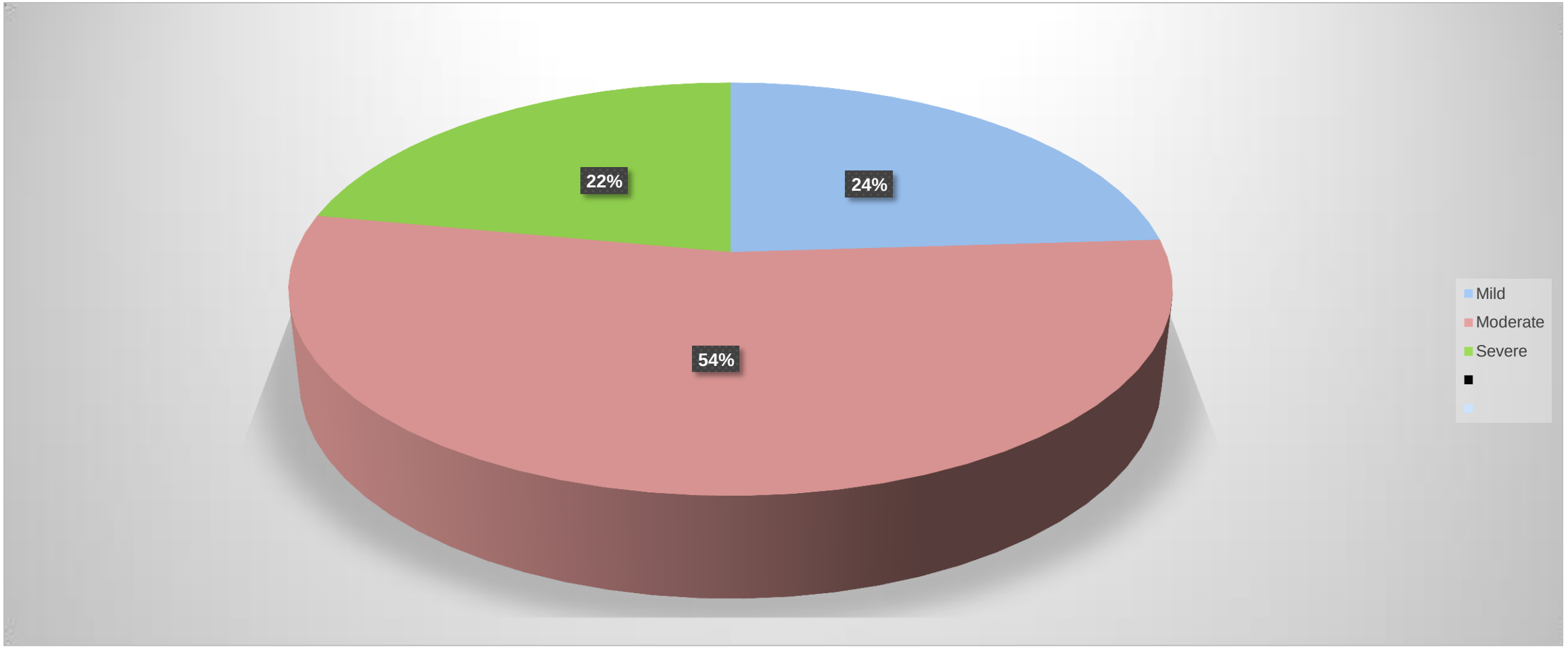


Distribution of the patients by residence & marital status

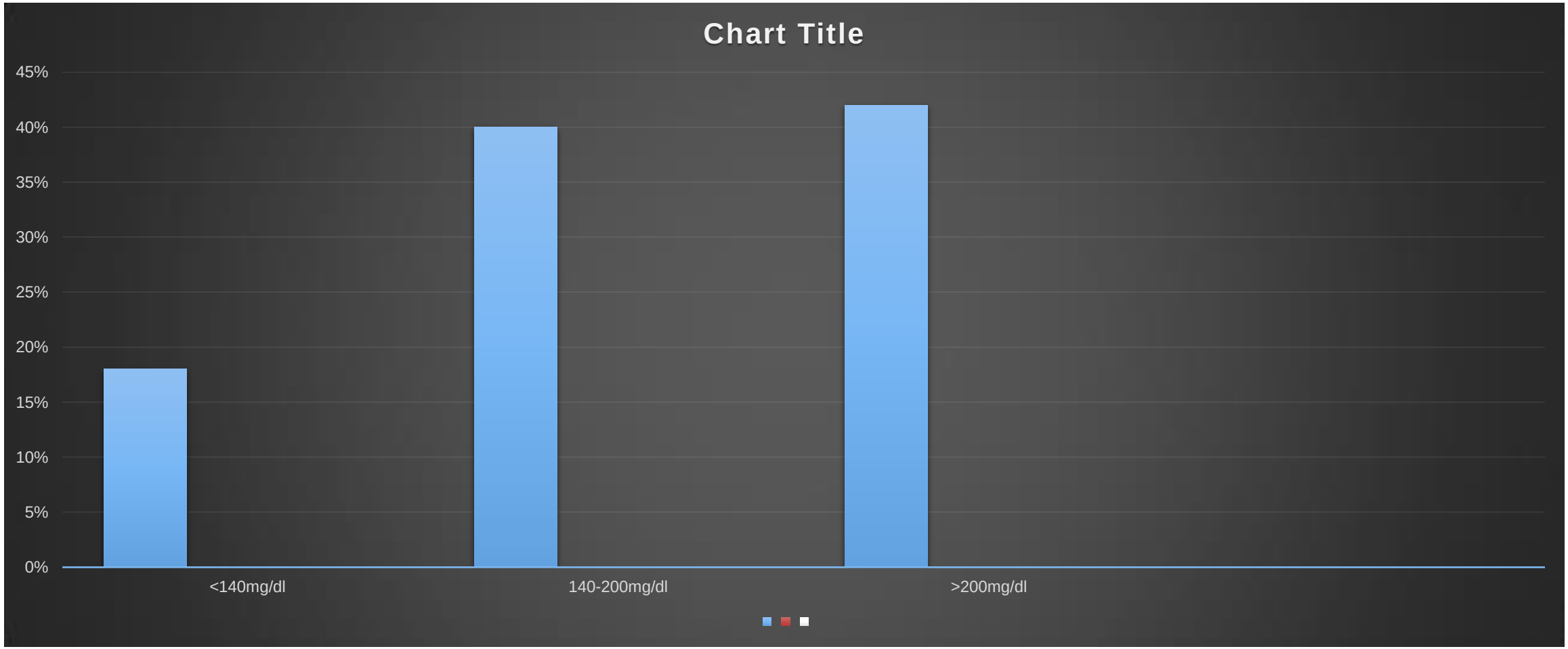




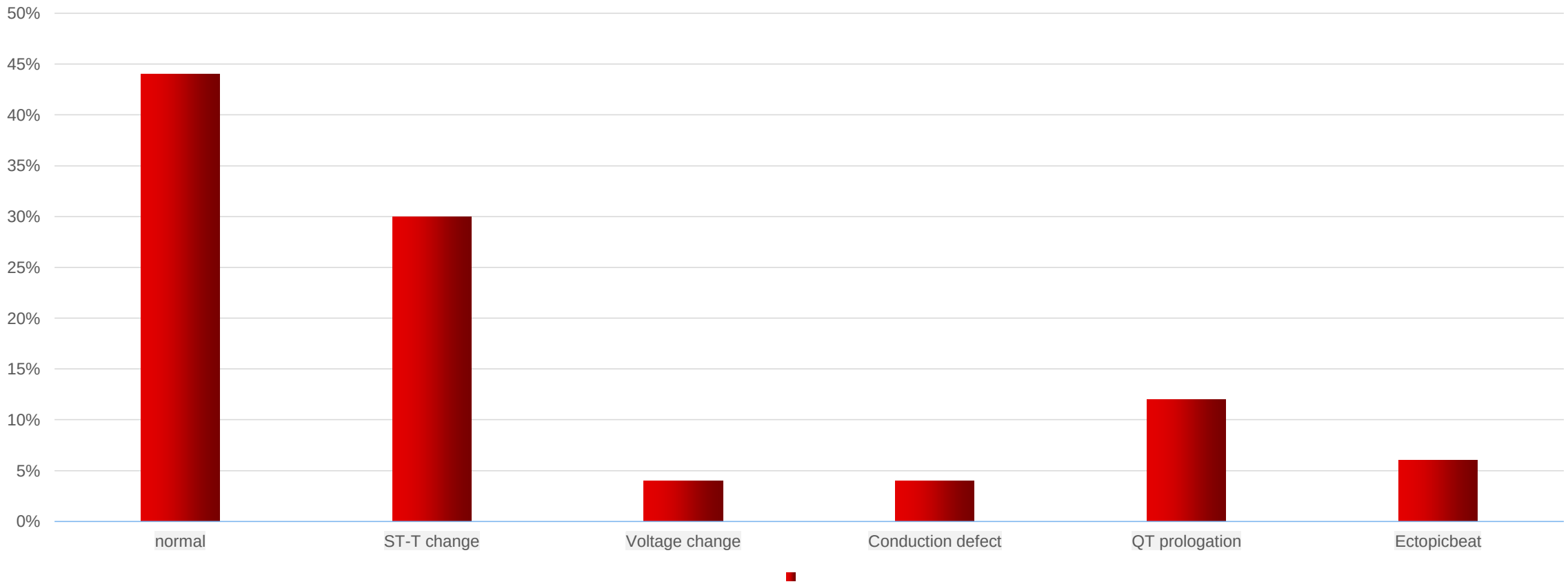
Distribution of study population based on the severity by POP scale



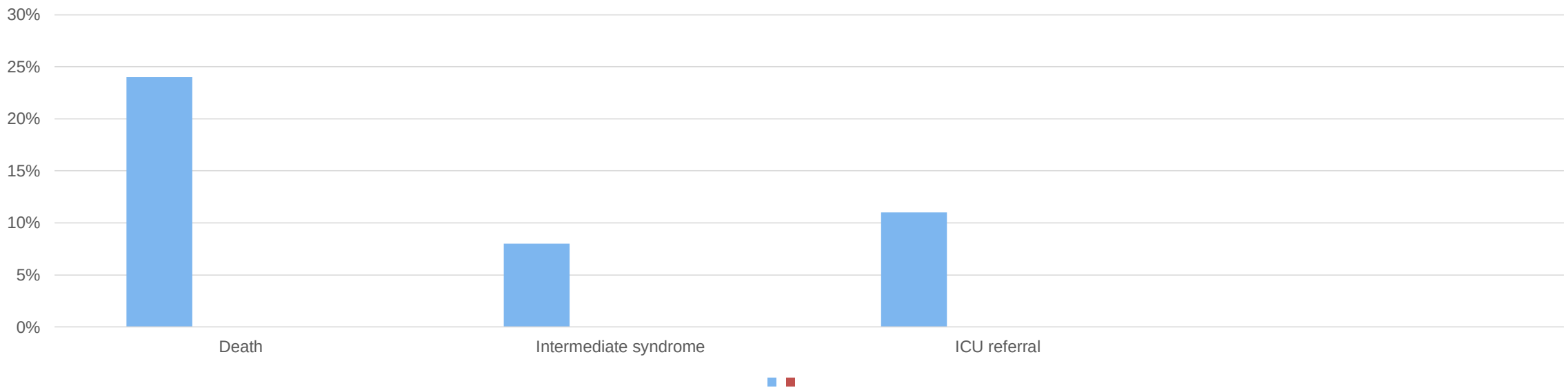
Distribution of the patient by glycemic status at admission(n=50)



ECG findings at admission in the patients(n-50)



In hospital outcome of the patients



Average duration of hospital stay 2-8 days

Association between baseline POP score, ECG findings and glycemic status with outcome of the patients

Parameters	Level	Outcome of the patients		P value*
		Survived (n=38)	Died (n=12)	
POP	Mild (0-3)	11 (28.9)	1 (8.3)	<0.001
	Moderate (4-7)	27 (71.1)	0 (0)	
	Severe (8-11)	0 (0)	11 (91.7)	
RBS level	<140 mg/dl	7 (18.4)	2 (16.7)	0.001
	140-200 mg/dl	19 (50.0)	1 (8.3)	
	>200 mg/dl	12 (31.6)	9 (75.0)	
ECG	Normal	19 (50.0)	3 (25.0)	0.128
	Abnormal	19 (50.0)	9 (75.0)	

Discussion

In this study, 12 (24%) patients died out of 50 included patients. All patients with severe poisoning as per POP score at admission died in hospital. Regarding admission glucose level >200 mg/dl were associated with mortality and morbidity in the study. Admission ECG finding had no significant association with the in-hospital mortality in the study

Discussion

POP score at the time of admission 7.5 or more had 91.7% sensitivity and 100% specificity to predict in hospital mortality. Admission Random blood glucose level

of 207.9 mg/dl had 75% sensitivity and 68.4% specificity to predict in hospital mortality and morbidity.

Conclusion

It can be concluded that assesment by POP scale and blood sugar level at initial presentation in OPC poisoning cases is useful in assessing the severity and at the same time being important indicators of mortality

Recommendations

- Admission RBS > 207 mg/dl along with POP score >7 can be considered as a useful factor in predicting the need for ventilator support and as well as mortality of OPC poisoning.

Limitations

This study has some methodological limitations which must be considered in the analysis of the results.

- Due to the COVID-19 situation and limited resource sample size was relatively small. Moreover, it was a single center study which might limit its ability to generalize the results.
- Toxicological analysis was not possible
- The study did not record or analyze the dose of the ingested OPC.
- Patient follow-up period was short.

It’s a challenge to give support . Don’t hate someone who wish to commit suicide. Its all about sympathy, empathy and humanity .

Never be rude to a patient who took poison , may be you are the last one for him or her to trust ! If you have anger please withdraw yourself from treating the patient.