

3rd Biannual Conference
Pakistan Society of Chemical
Pathologists

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**ACUTE
ORGANOPHOSPHATE
POISONING**

INTRODUCTION

Organophosphate (OP) compounds have been used world wide for pest control for over 100 years.

Pesticides of choice in the agricultural world

The most common cause of poisoning among the organic pesticides.

World Wide:

3,000,000 people are exposed per year.

300,000 deaths occur per year.

CLASSIFICATION

1. Class-I (High toxicity)

parathion, phorate, and disulfoton.

2. Class-II (Intermediate toxicity)

coumaphos, chlorpyrifos and trichlorfon.

3. Class-III (Low toxicity)

malathion, dichlorvos and acephate

MODE OF ACTION

Organophosphates bind to the cholinesterase.

Convert the enzyme into an inactive protein complex.

The compound undergoes a conformational change (aging).

It is irreversibly resistant to reactivation.

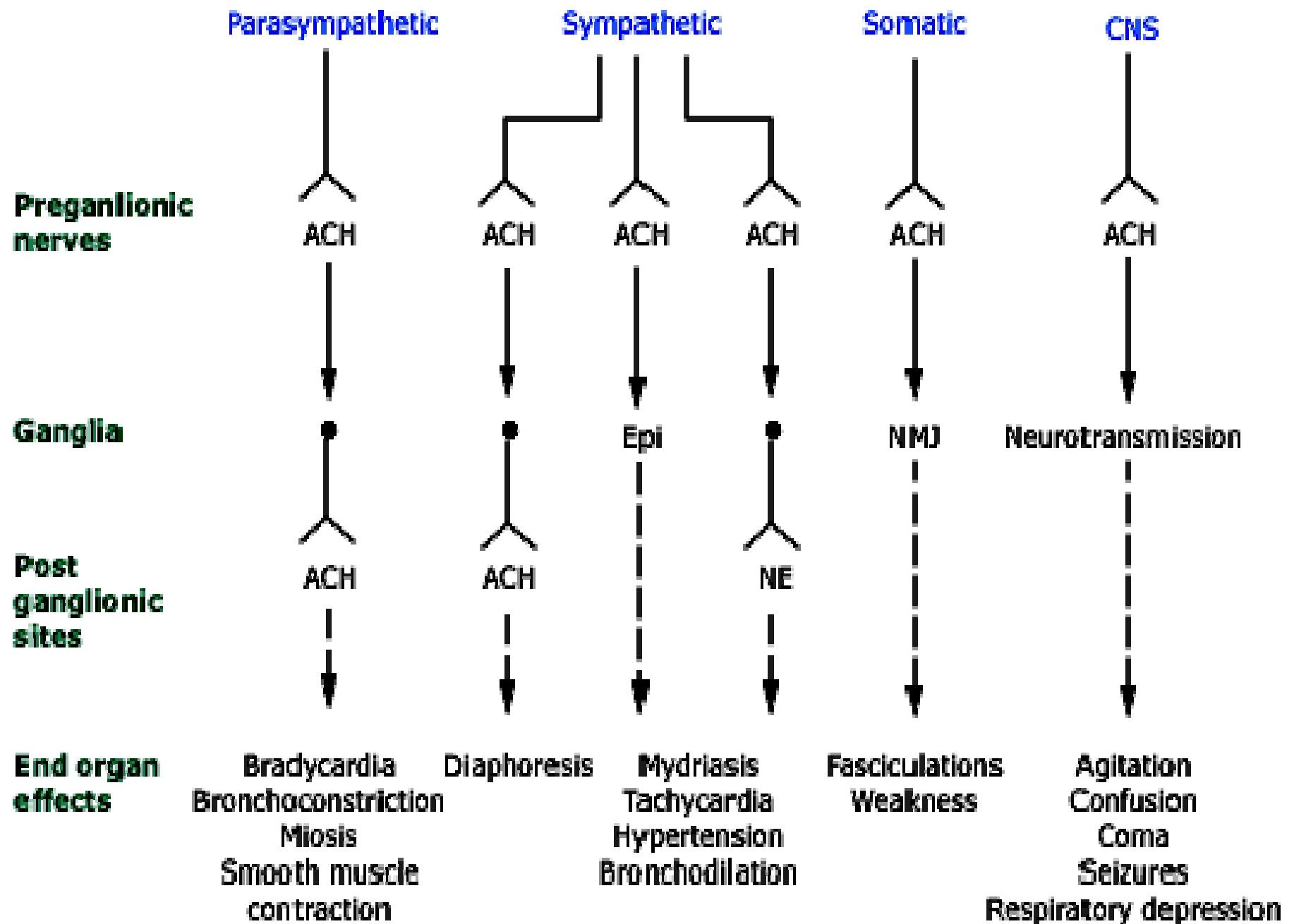
ACETYLCHOLINESTERASES

1. True cholinesterase

Found primarily in the nervous tissue and erythrocytes.

2. Pseudocholinesterase

Found in the serum and liver



CHOLINESTERASE REACTIVATING AGENTS

Obedoxime

Pralidoxime

HI6

HIo7

CHOLINESTERASE REACTIVATING AGENTS

Mode of action

Break the bond between the organophosphate molecule and the enzyme.

Increase water solubility of the poison

ORIGINAL STUDY

Purpose of Study

To find out the outcome in patients admitted with organophosphate poisoning in Bahawal Victoria Hospital ,Bahawalpur .

PATIENTS AND METHODS

241 patients of organophosphate poisoning admitted in medical wards Bahawal Victoria Hospital Bahawalpur from January to December 2009 were included in the study.

The patients exposed to other poisons were excluded.

The diagnosis of OP poisoning was based on history of exposure and clinical manifestations of OP poisoning.

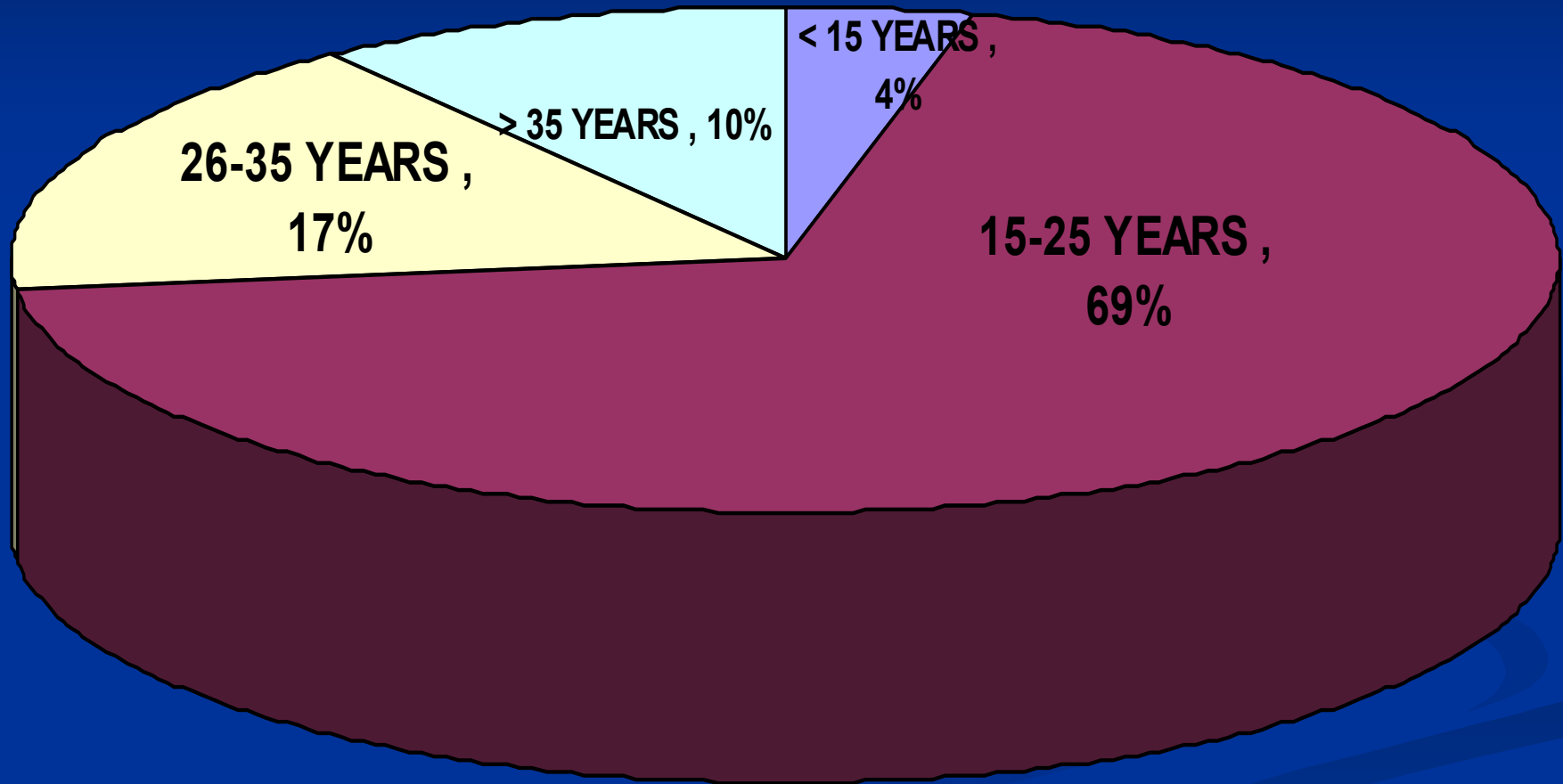
SOURCE

Data was retrieved from the wards and ICU record on a performa including demographic characteristics, clinical presentation and outcome.

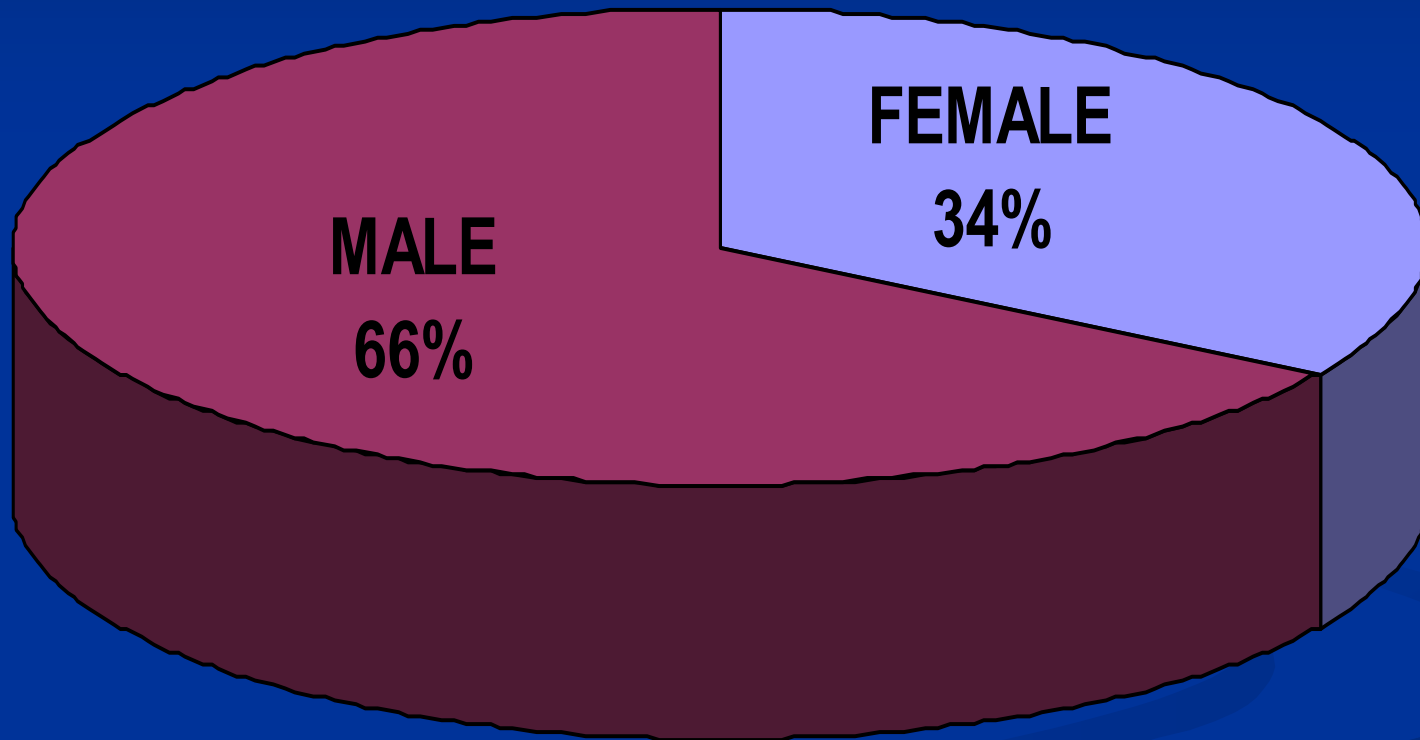
DATA ANALYSIS

Data was analyzed using SPSS12. Frequencies and percentages were computed. Probability values of $p < 0.05$ were considered significant. Chi-square test applied.

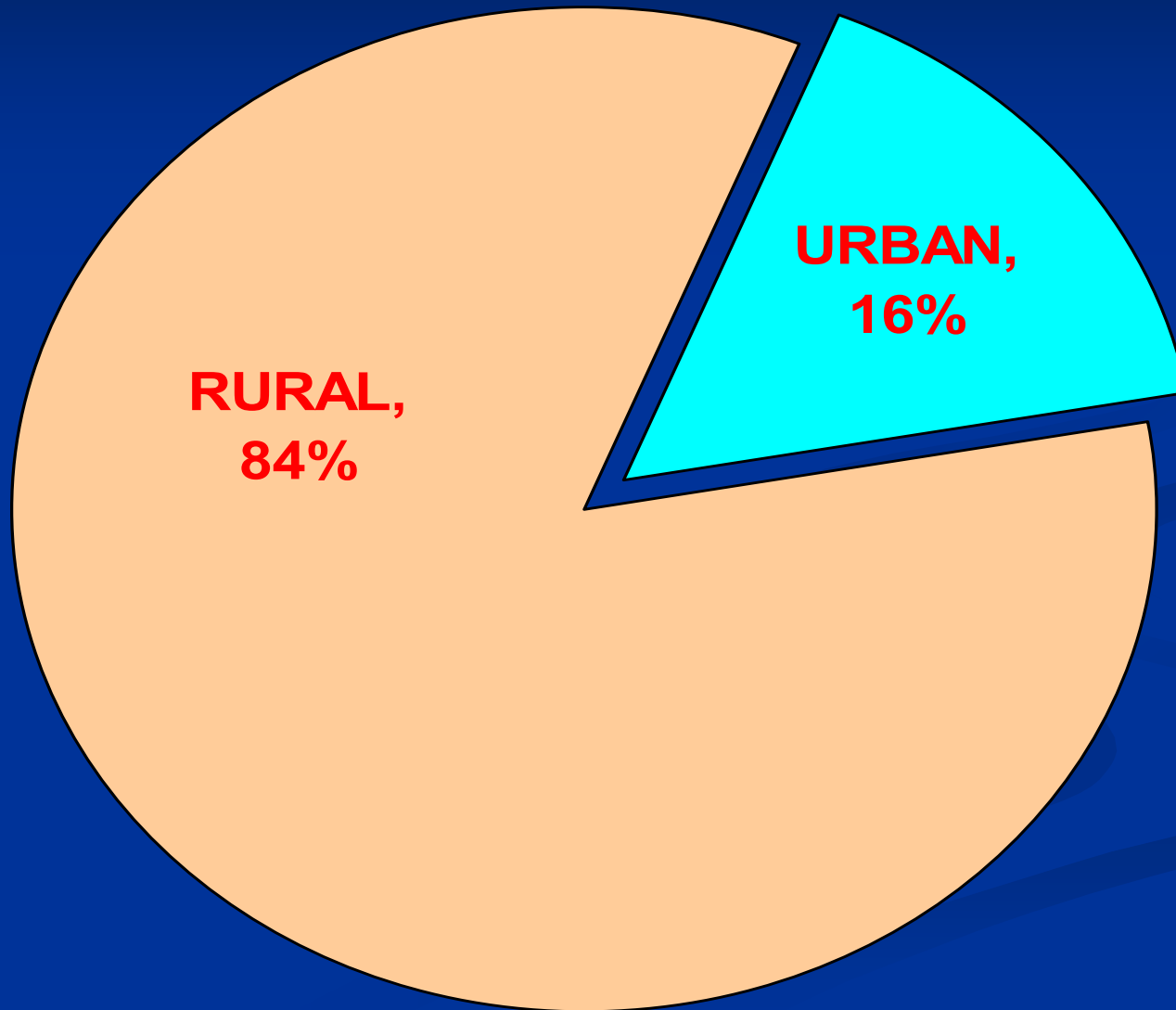
AGE DISTRIBUTION



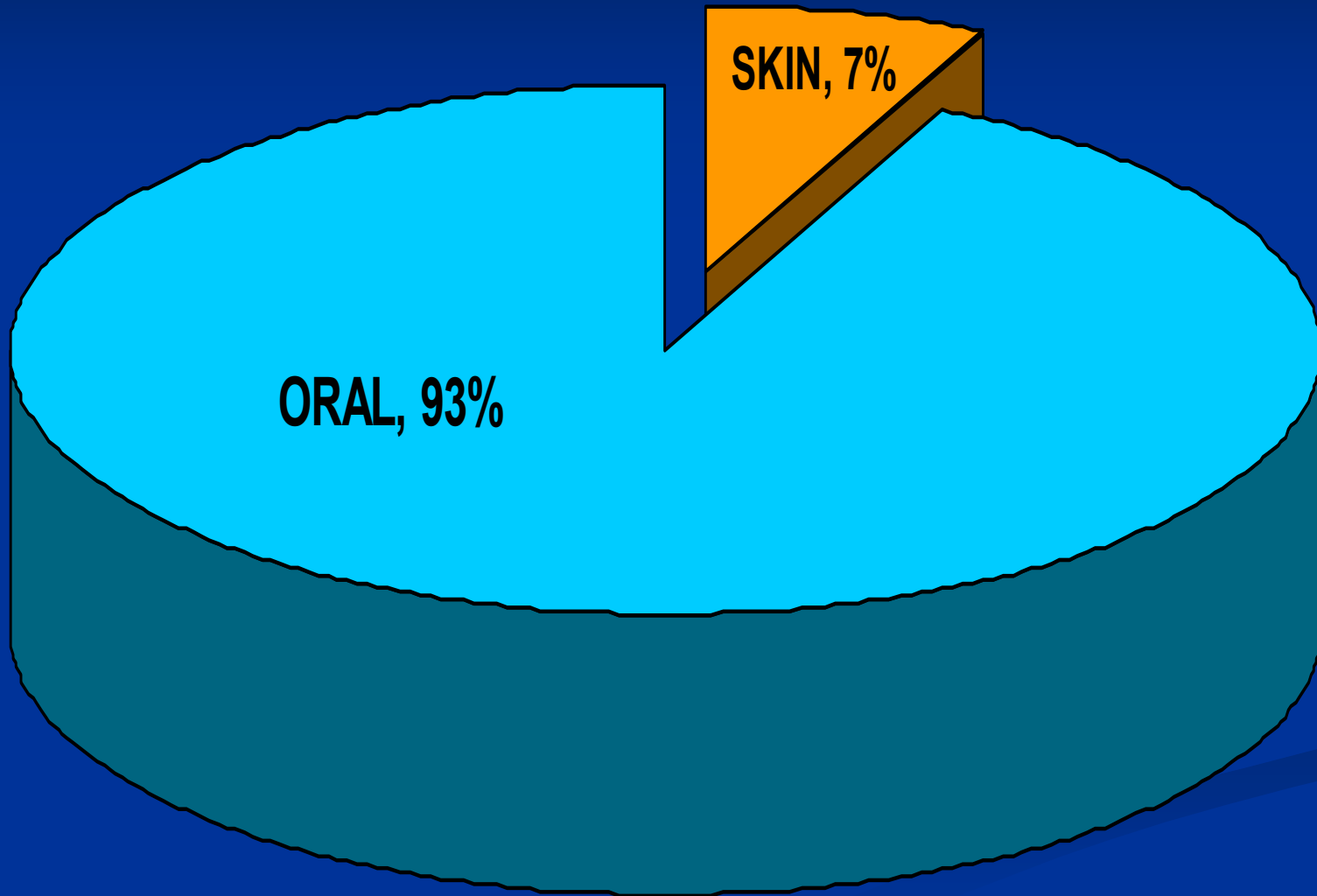
SEX DISTRIBUTION



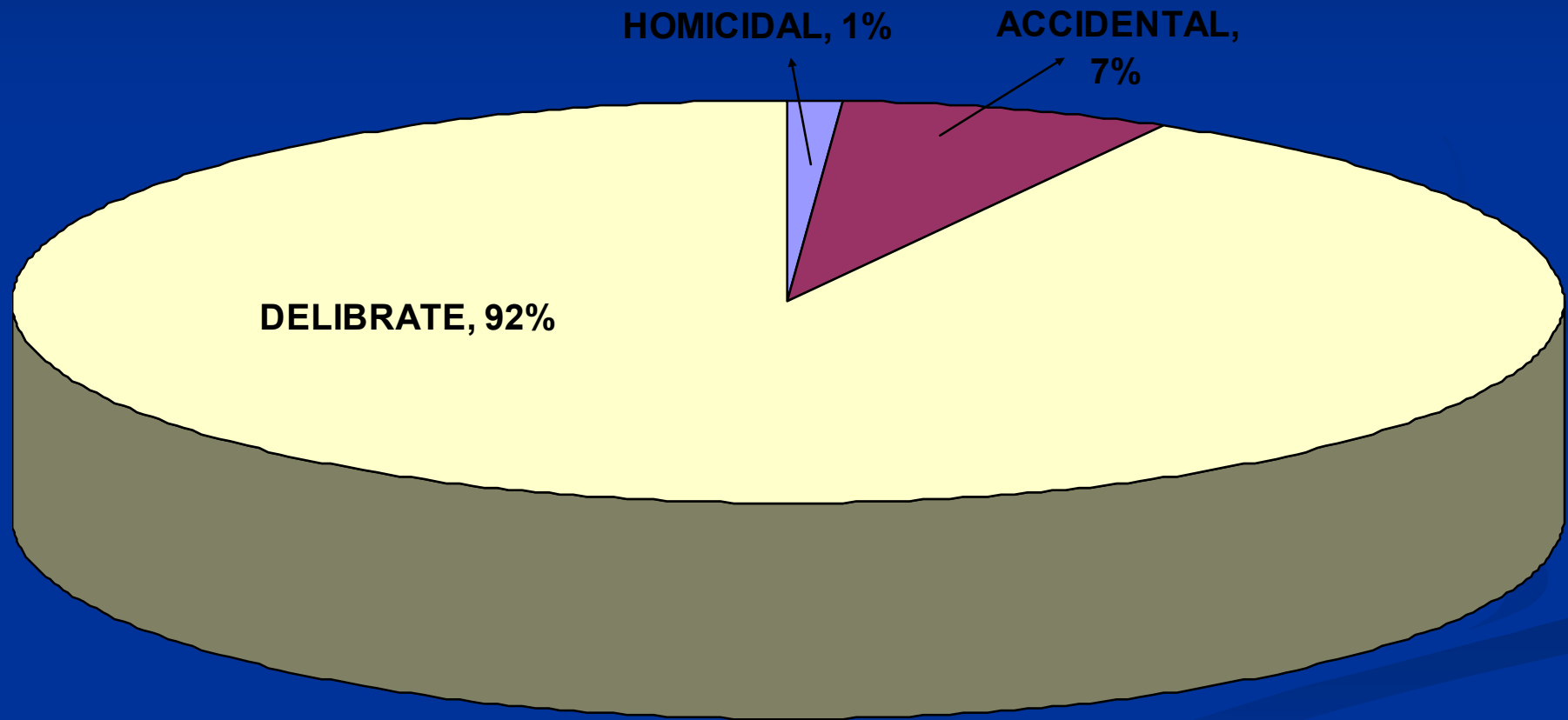
RURAL □ URBAN DISTRIBUTION



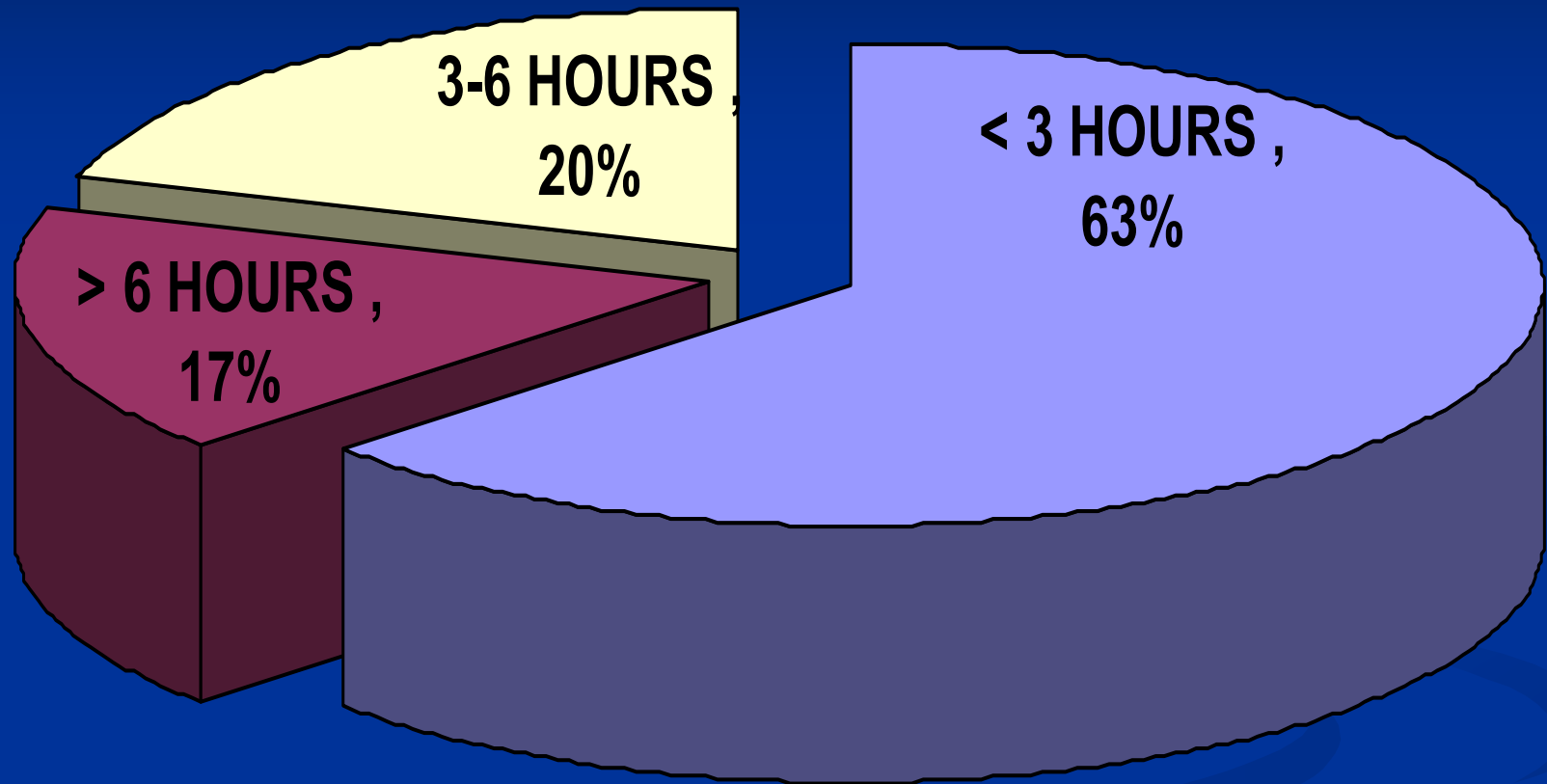
ROUTE



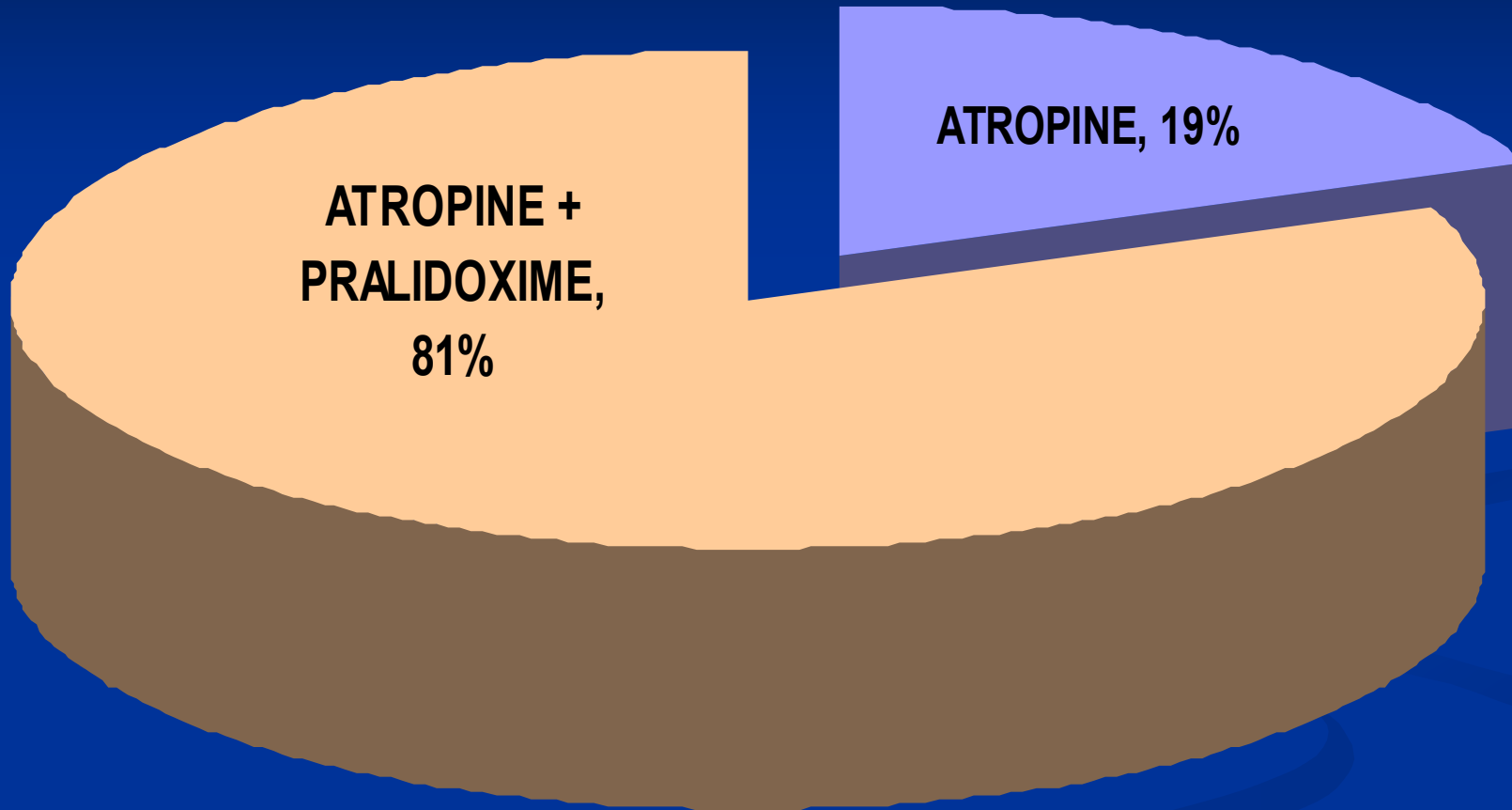
CAUSE



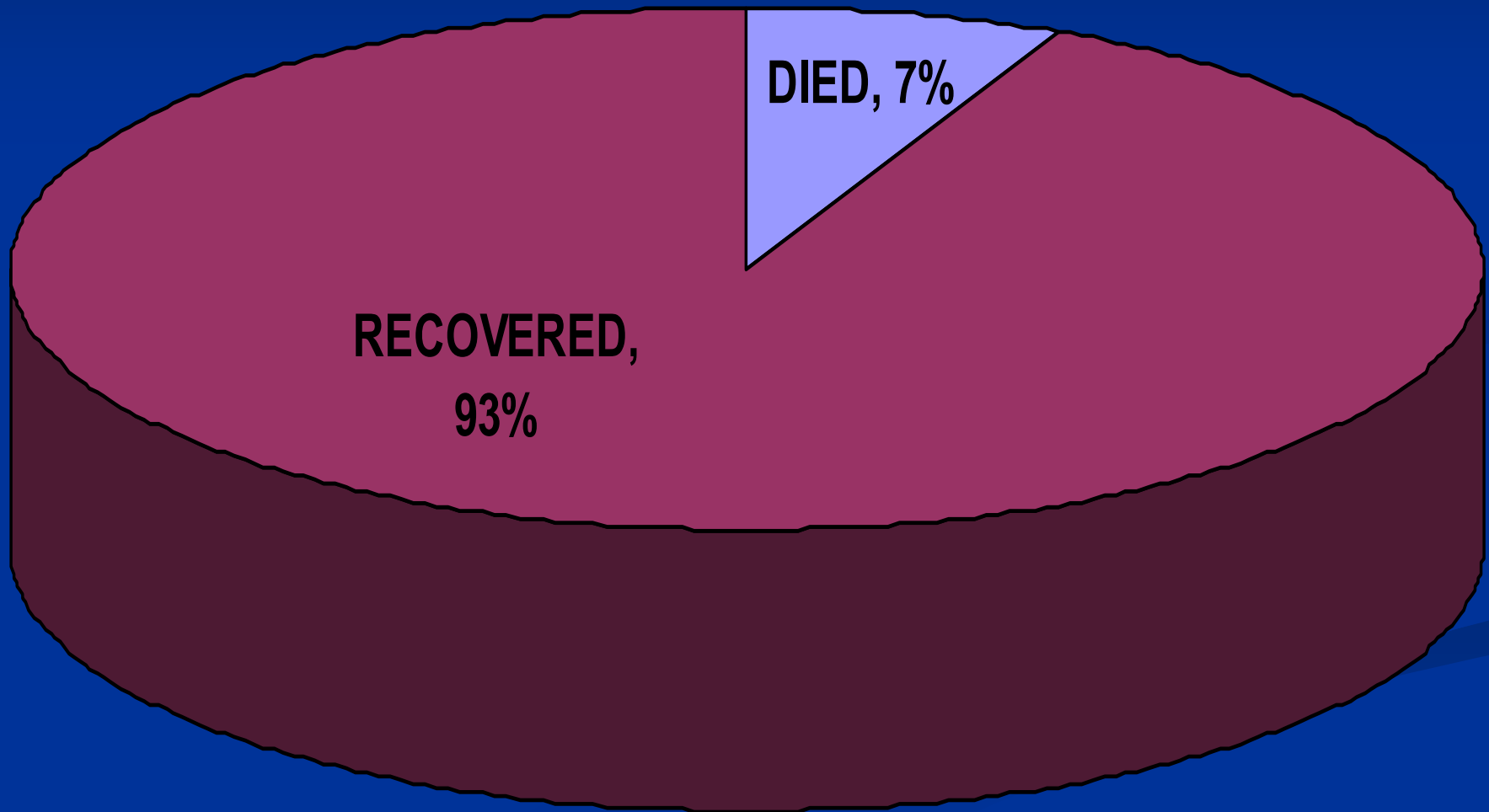
TIME OF ARRIVAL



ANTIDOTE



OUTCOME



CONCLUSIONS

OUTCOME-MARRITAL STATUS RELATIONSHIP

Marrital status	Recovery	Death	Total	Percent
Married	129	5	134	3.73%
Unmarried	95	12	107	11.2 %
Total	224	17	241	
Pvalue=.023		df=1		

TIME-OUTCOME RELATION

Time	Recovery	Death	Total	Percent
< 3 hours	153	4	157	2.54%
3-6 hours	41	2	43	4.65%
> 6 hours	30	11	41	26.8%
Total	224	17	241	
Pvalue= .000		df=2		

OUTCOME-THERAPY RELATION

Therapy	Recovery	Death	Total	Percent
Atropine+ pralidoxime	191	5	196	2.55%
Atropine only	33	12	45	26.6%
Total	224	17	241	
Pvalue= .000		df= 1		

OUTCOME-SEX RELATIONSHIP

Sex	Recovery	Death	Total	Percent
Male	147	11	158	6.9%
Female	77	6	83	7.2%
Total	224	17	241	

DISCUSSION

Mortality rate range from 6.9-19 % in most of the studies.

In our study it is 7% that is comparable to

Study of Imran Sulaiman at Bahawalpur in 2002, rate was 6.9 %

Study of Rauf et al at Multan in 2000 mortality rate 15%

In a Korean study in 2009 mortality rate was 19% .

LIMITATIONS OF THE STUDY

Organophosphate Compound not identified.

Quantity of organophosphate ingested not mentioned.

RBCs or serum concentration of cholinesterase was not detected.

THANKS