

A prospective comparative cohort study on the dosing pattern of atropine in Organophosphorous and Carbamate poisoning in rural Sri Lanka

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Total Hospital Admissions and Deaths Due to Poisoning 2005 in Sri-Lanka

	Total admission	Deaths	Case fatality
Organophosphates and Carbamates	12,587	892	6.6
Other pesticides	4,323	378	8.0
Drugs and therapeutic agents	18,174	151	0.8
Snake bites	36,727	134	0.4
Other substances	17,456	230	1.3

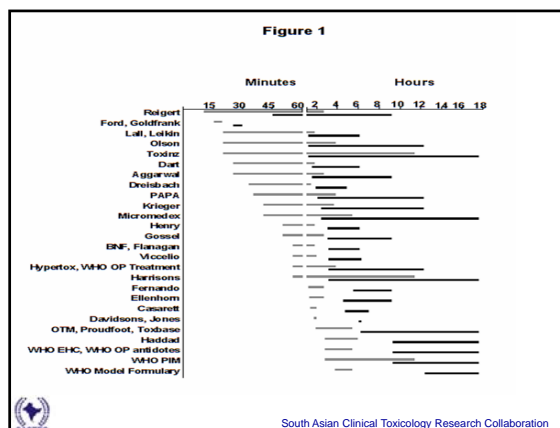
Source: National Poison Center Sri-Lanka
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Atropine Dose in Organophosphates

- ☒ Sri Lankan ventilated OP patients who survived require
 - Mean initial dose of 23.4 mgs.
 - Maximum initial dose of 75 mgs.
- ☒ 38 texts with 31 different recommendations

Eddleston et al. Speed of initial atropinisation in significant organophosphorus pesticide poisoning. J Tox Clin Tox 2004;42(6):865-75

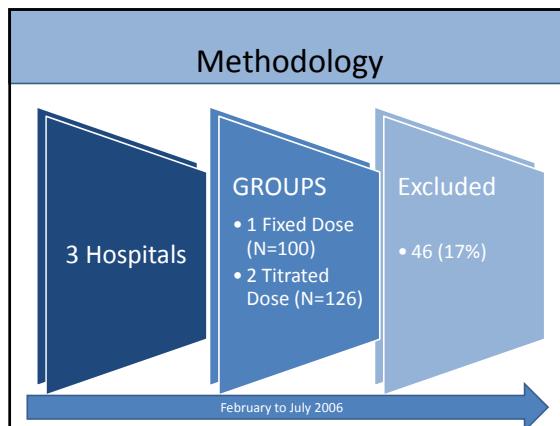
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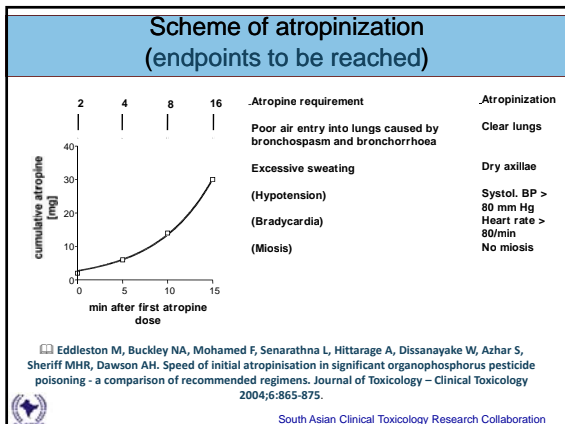


Purpose of the study

- ☒ To examine the safety and efficacy of atropine in a cohort of patients with acute cholinesterase inhibitor poisoning

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Baseline Characteristics of all patients in the cohort

	'fixed high dose' N=119	'titrated dose' N=153	P Value
Males	85(71%)	90(59%)	0.031
Age (years)*	25.5 (20-35)	26(22-38)	0.025
Direct admission	89 (75%)	24 (16%)	<0.0001
Chlorpyrifos	93 (78%)	56(37%)	<0.0001
Dimethoate	3 (3%)	28 (18%)	<0.0001
Amount Ingested (ml) *	27 (10-80)	50 (25-100)	0.002
GCS < 15	71 (60%)	110 (72%)	<0.003
Pulmonary signs	25 (21%)	55 (36%)	0.007
Ventilated on admission	1 (1%)	9 (6%)	0.002
Alcohol ingestion	34 (29%)	29 (19)	NS
Co-Morbid Illness***	15 (13%)	22 (14%)	NS
Pralidoxime	48 (40%)	32 (21%)	0.0005

Data are number (%) unless otherwise indicated. *Median (IQR).
**Others: Diazinon, Phethoate, Acephate, Profenopos, Methamidaphos and Azadiractin
***Co-morbid illness included cardiac, pulmonary, psychiatric, neurologic and undiagnosed disorders

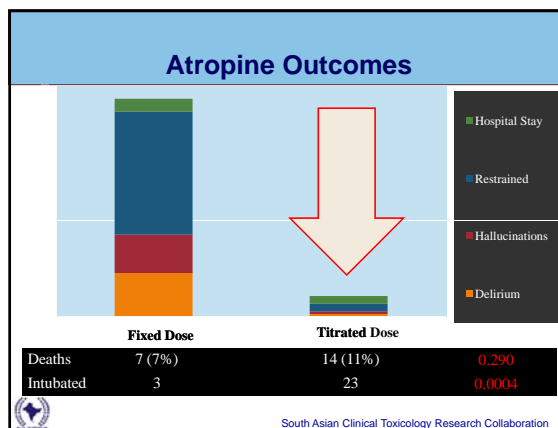
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Atropine dosing

	'Fixed high dose' N=100	'Titrated dose' N=126	P Value
Atropine Bolus (mg)	15 (10-20)	3.9 (1.2-19.2)	0.0013
Atropine Infusion rate over first 24 hours (mg/hour)	2.1 (1.18-3.39)	1.39 (0.46-2.32)	<0.0001
Total atropine dose (mg.) over first 24 hours	65.4	37.3	<0.0001

Data are Median (IQR)

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Summary of major outcomes of pesticides

	Fixed high dose	Titrated dose	P Value
Chlorpyrifos	N=93	N=56	
Ventilated	2 (2%)	5 (9%)	N/S
Death	3 (3%)	2 (4%)	N/S
Dimethoate	N=3	N=28	
Ventilated	0 (0%)	14 (50%)	N/S
Death	2 (67%)	8 (29%)	N/S
Carbamates	N=5	N=13	
Ventilated	0 (0%)	1 (8%)	N/S
Death	1 (20%)	2 (15%)	N/S
Others and unknown OPs	N=18	N=56	
Ventilated	3 (17%)	4 (7%)	N/S
Death	2 (11%)	5 (9%)	N/S

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Conclusions

- ✘ Titrated atropine dosing was associated with significantly less atropine toxicity
- ✘ There is no difference in patient mortality
- ✘ Atropine doses should be titrated against response and toxicity
- ✘ The use of a structured monitoring sheet may assist in more appropriate atropine use

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