A RETROSPECTIVE CASE CONTROL STUDY ON PATIENTS' OUTCOME FOR PREHOSPITAL ACTIVATED CHARCOAL USE IN POISONING PATIENTS

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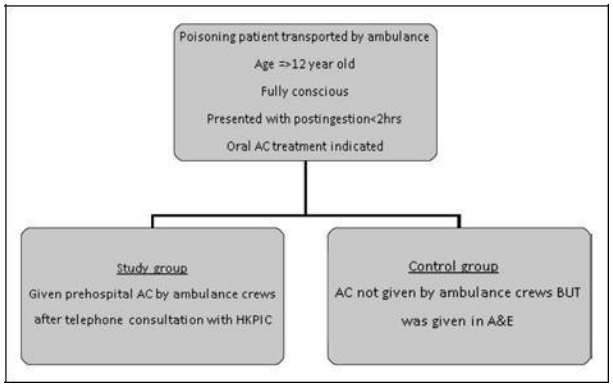
Objectives: Activated charcoal (AC) is an established method of gastrointestinal (GI) decontamination in patient who has ingested a toxic amount of a poison. In order to obtain the maximal benefit from AC, it should be given as early as possible, and within 1-2 hours after poison ingestion. Traditionally, AC is given to poisoning patient in Accident and Emergency Department (A&E) after assessment by doctor. Since 1-11-2010, Hong Kong Poison Information Centre (HKPIC) and Fire Service Department (FSD) have collaborated to provide a prehospital AC administration program. The ambulance paramedics will provide AC to selected poisoning patients after consulting HKPIC by telephone. This will significantly shorted the delay in AC administration. The primary objective of this study is to evaluate the benefits and potential drawbacks of prehospital AC service.

Methods: This is a retrospective case control study on patients presented to all A&E in Hong Kong during 1-11-2010 to 31-1-2012. The following figure describes how the study subjects were recruited:



Eligible subjects were identified in HKPIC poisoning patient database. Data were extracted from ambulance journey record, A&E record & discharge summary.

Results:

	Study group N=139	**Control N=63**	**p-value**	**Interpretation**
Primary outcomes measurement				
Poisoning outcome severity grading			0.934	Patients who has received prehospital AC doesn't have a better poisoning outcome severity grading or shorter hospital stay when compare with the control group
No effect	86 (44.62%)	27 (42.9%)		
Minor effect	86 (44.62%)	29 (46%)		
Moderate effect	13 (9.3%)	6 (9.5%)		
Major effect	0 (0%)	1 (1.6%)		
Death	1 (0%)	0		
Median length of	1 (0-2)	1 (1)	0.887	

stay in hospital in days (IQR)				
Secondary outcomes measurement				
Median duration between poison ingestion and activated charcoal administration in minute (IQR)	60 (38.5-81.5)	95 (77.5-112.5)	0.000	On average the study group patients received AC 35 minutes earlier.
Median duration of ambulance journey in minute (IQR)	31 (24.5-37.5)	27 (21-33)	0.001	The duration of the ambulance journey is 4 minutes longer for the study group patients
Complications	(4.5 6%)	1 (1.6%)	0.438	No difference in the complication rate

Conclusions: Our study cannot demonstrate an improvement in clinical outcome for poisoning patients who were treated with present prehospital AC protocol. The service shortened the delay in AC administration by an average of 35 minutes. The ambulance journey is 4 minutes longer, presumably related to the inevitable time cost of the new service.