POTENTIALLY PREVENTABLE DEATHS INVOLVED WITH "THAI NATIONAL ANTIDOTE PROGRAM"

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Objective: To identify the common substances and scenarios related to preventable death in cases involved with "Thai National Antidote Program"

Methods: This study is a retrospective review of mortality cases who involved with "Thai National Antidote Program" reported to Ramathibodi Poison Center during January 2011 to December 2014. Demographic data, diagnosis, and treatment were recorded.

All records were separately reviewed by two toxicologists. Preventability was graded by using a Likert scale of 1 (definitely non-preventable) to 6 (definitely preventable). Cases defined as "at least probably preventable" (scores 4–6) were defined to be preventable deaths.

All cases were determined if there were any improvement issues (diagnosis, treatment, monitoring, other). The improvement issues were graded by using a Likert scale of 0 (No), 1 (Probable), and 2 (Yes). Improvement issues defined as "at least probably related" (scores 1-2) were defined to be related with the case. In a single case, there could be more than one improvement issue.

The inter-observer agreement were determine using weight kappa analysis; using weight of 0.8, 0.6, 0.4, 0.2, and 0 for each difference of preventability grading, and using weight of 0.5, and 0 for each difference of improvement issues grading. Differences between two toxicologists were resolved by discussion. The common substances associated with preventable death and the potentially improvement issues of those cases were listed.

Results: During study period, there were 40 deaths involved with "Thai National Antidote Program" reported to Ramathibodi Poison Center. Of these, 7 (17.5 %) deaths were determined to be "at least probably preventable." The common issues involved treatment and monitoring. Inter-observer agreement were almost perfect (weighted κ = 0.82 for preventability, and 0.84 for specific improvement issue). The common preventable death scenario was chloroacetanilide herbicide poisoning (4 cases); the issues involved were closed monitor oxygen saturation and hematocrit in cases with chloroacetanilide herbicide poisoning, and focus on red cell transfusion rather than using methylene blue in massive hemolysis cases with low degree of methemoglobinemia. The other three were; 1) delayed cyanide antidote kit transportation to a cassava poisoning case, 2) cardiac arrest from rebound hyperkalemia when titrate down insulin in amlodipine poisoning, 3) inadequate treatment of congestive heart failure case which misdiagnosed to be cyanide poisoning from low dose nitroprusside.

Conclusions: Based on Ramathobodi Poison Center data, the common potentially preventable deaths involved with "Thai National Antidote Program" were resulted from monitoring and treatment in chloroacetanilide herbicide poisoning.