AN OVERVIEW OF RENAL VICTIMS OF MULTI-STORIED BUILDING COLLAPSE AT SAVAR, BANGLADESH: FIRST MONTH'S EXPERIENCE

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INTRODUCTION AND AIMS

On 24th April 2013 at 8:45 am, an eight-storied commercial building, "Rana Plaza" collapsed at Savar, Dhaka, Bangladesh. It is considered to be the deadliest garment-factory accident in history. This incidence left behind few thousand injured persons. This type of injury may lead to acute kidney injury (AKI) which may cause death if not addressed properly.

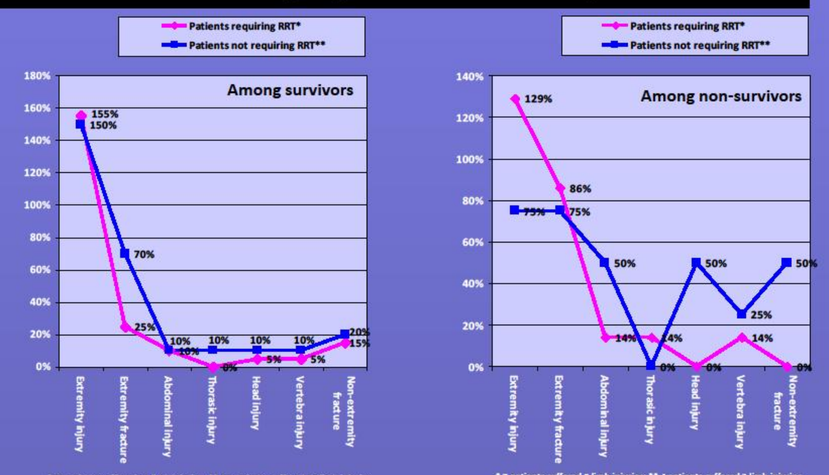
METHODS

A questionnaire was formed and data were collected from different hospitals admitting the victims. We retrospectively evaluated patients' clinical and laboratory findings, surgical interventions, requirement of dialysis and outcome.

RESULTS

Data were available from 1762 patients, among which 41 (2.33%) patients (18 male and 23 female, mean age 26.46 6.39 years) with AKI were identified. Renal replacement therapy (RRT) was required in 27 (65.85% of AKI) patients. Overall mean trapped period of patients who developed AKI was 17.72 (range 2-74) hours and the mean duration of identifying AKI was 55.7 28.9 hours from the time of incidence. During diagnosis of AKI the mean serum urea and creatinine levels were 109.96 42.86 mg/dl and 4.94 2.52 mg/dl respectively. At the end of first month, 11 (26.83% of renal casualties and 1.44% of all hospitalized victims) patients expired.

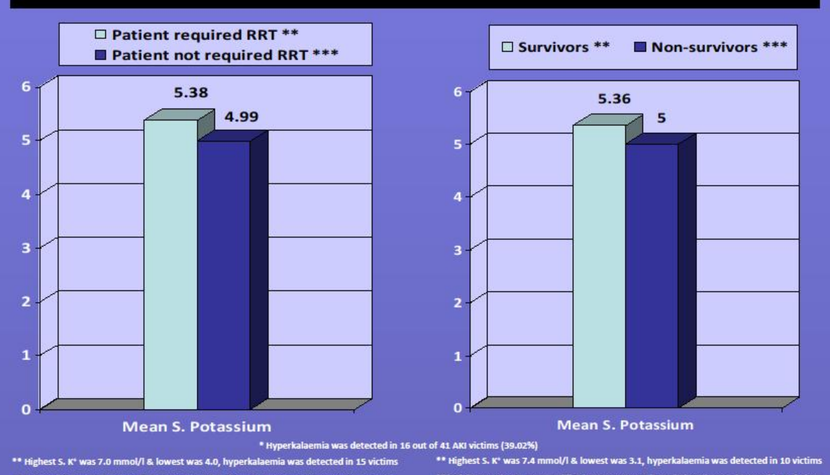
Pattern of injury in renal failure patients



*20 patients suffered 31 limb injuries; ** 10 patients suffered 15 limb injuries

* 7 patients suffered 9 limb injuries; ** 4 patients suffered 3 limb injuries

S. Potassium level in AKI victims *



* Hyperkalaemia was detected in 16 out of 41 AKI victims (39.02%)

** Highest S. K+ was 7.0 mmol/l & lowest was 4.0, hyperkalaemia was detected in 15 victims

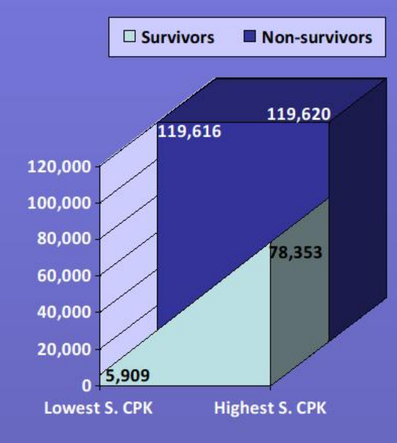
*** Highest S.K+ was 7.4 mmol/l & lowest was 3.1, hyperkalaemia was detected in 1 victim

** Highest S. K+ was 7.4 mmol/l & lowest was 3.1, hyperkalaemia was detected in 10 victims

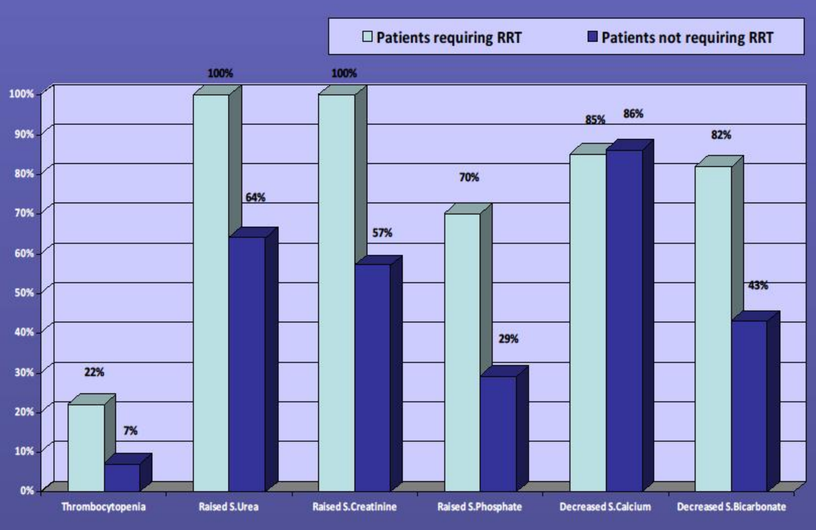
*** Highest S.K+ was 5.8 mmol/l & lowest was 4.0, hyperkalaemia was detected in 6 victims

Serum CPK level and outcome of renal victims

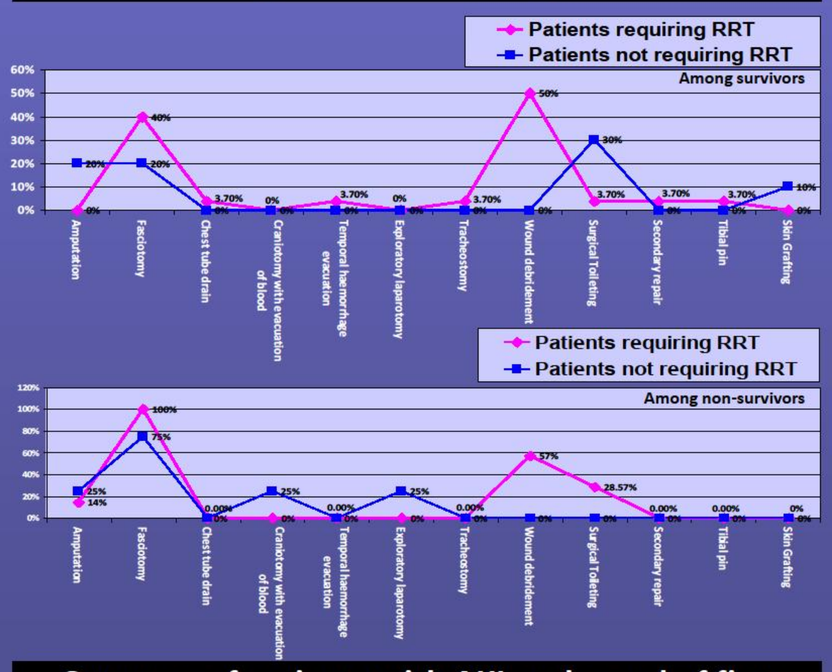
S. CPK was raised in 32 out of 41 renal victims (78.05%of AKI victims)



Other associated haematological and bio-chemical abnormalities



Surgical treatment required

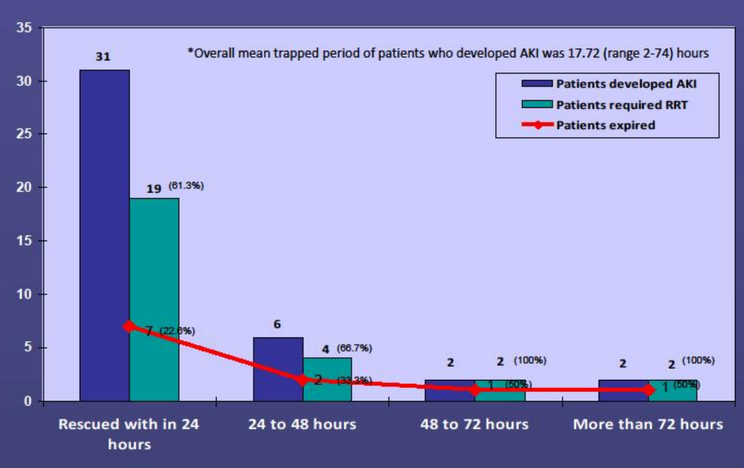


Other Medical Complications

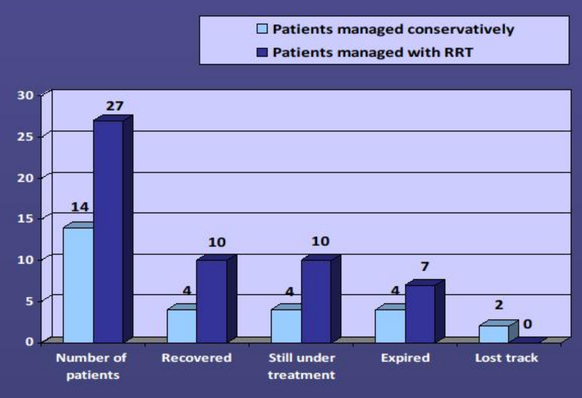
	Survivors (n = 30)	
	Pt. Requiring RRT	Pt. not requiring RRT
Number of Patients	20 (66.67%)	10 (33.33%)
Wound Infection	07 (23.33%)	02 (6.67%)
Respiratory tract infection	03 (10%)	01 (3.33%)
Urinary tract infection	03 (10%)	00 (0%)
Sepsis	07 (23.33%)	01 (3.33%)
Hypertension	02 (6.67%)	00 (0%)
Arrhythmia	00 (0%)	00 (0%)
Cardiac Arrest	01 (3.33%)	00 (0%)
Complete Heart Block	01 (3.33%)	00 (0%)
DIC	02 (6.67%)	00 (0%)
Pleural Effusion	08 (26.67%)	00 (0%)
ARDS	01 (3.33%)	00 (0%)
Atelactasis	01 (3.33%)	00 (0%)

	Non-survivors (n = 11)	
	Pt. Requiring RRT	Pt. not requiring RRT
Number of Patients	07 (63.64%)	04 (36.36%)
Wound Infection	05 (45.45%)	02 (18.18%)
Respiratory tract infection	00 (0%)	00 (0%)
Urinary tract infection	00 (0%)	00 (0%)
Sepsis	05 (45.45%)	04 (36.36%)
Hypertension	00 (0%)	00 (0%)
Arrhythmia	00 (0%)	01 (9.09%)
Cardiac Arrest	00 (0%)	00 (0%)
Complete Heart Block	00 (0%)	00 (0%)
DIC	03 (27.27%)	01 (9.09%)
Pleural Effusion	01 (9.09%)	00 (0%)
ARDS	01 (9.09%)	00 (0%)
Atelactasis	00 (0%)	00 (0%)

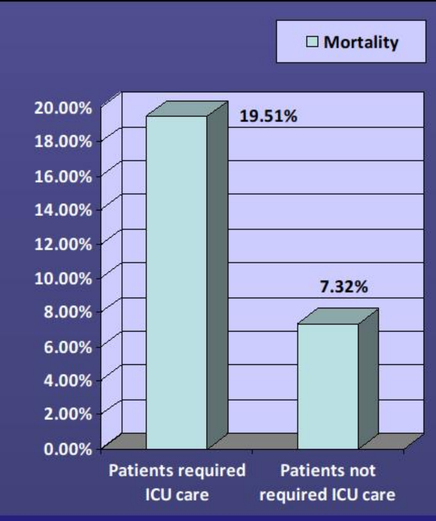
Relationship between trapped period and requirement of RRT and mortality



Outcome of patients with AKI at the end of first month



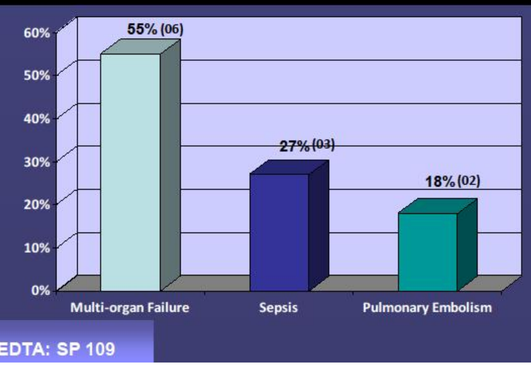
Patients requiring ICU support



•ICU admission was required in 17 (41.46% of AKI victims) patients

•Mechanical ventilation was required in 10 (24.39% of AKI victims) patients

Causes of death



CONCLUSION

Over 2% of our study population developed AKI and mortality among the AKI victims were about 27%. The insight of foreseeing the impact of such catastrophic events on renal function can further lessen the sufferings of the affected persons and thus spare their life by early intervention. This can only be achieved by planning a better disaster management protocol.

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G) Acute Renal Failure. G2) Human studies.

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