

Preoperative Windows for the Surgically Emergency Patients and the Knowledge of the Clinicians in Surgical Practice

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This study was carried out in different units of surgical wards of Chittagong Medical College Hospital, Bangladesh to assess knowledge of the clinicians in the surgery wards on the preoperative windows for the surgically emergency patients from 12 October 2008 to 5 June 2009. In this study 76 graduate and 46 postgraduate clinicians were included. This study revealed that among the graduate clinicians 71.1% had no idea about the question of (emergency) preoperative windows followed by 18.4% had some hazy idea, whereas, in case of the postgraduate clinicians the majority of the portion (39.1%) had only satisfactory ideas followed by 30.4% had no idea at all in such connection. In the question of proper fluid and electrolyte replacement, the majority portion (47.4%) had no satisfactory answer and 29.0% had no answer at all among the graduate clinicians, whereas in case of postgraduate clinicians 69.6% had a satisfactory level of knowledge, which were statistically significant. About 34.8% had no idea about the key points of monitoring the success of fluid replacement among the graduate clinicians followed by 29.0% had no idea, whereas, in case of post graduate clinicians 39.1% had the perfect idea in this relation and only 2.2% had no idea and here the differences were also significant. In the relation to the knowledge of the clinicians about the "Goldman cardiac risk index" in case of emergency surgery, no graduate clinicians had any perfect idea and the majority 81.6% had no idea at all, whereas, in case of postgraduate clinicians the majority group 34.8% had only some idea followed by 26.1% had only satisfactory idea as well as the same portion had no idea of it at all. In the question of preoperative respiratory resuscitation of any emergency surgical patient, 1.6% of graduate clinicians had no idea and only 5.3% had good knowledge about it. In the same association among the postgraduate clinicians 52.2% had a good knowledge followed by 45.7% had only some hazy idea and in case of preoperative anesthetic measurements for the emergency surgery, only 1.3% of the graduate clinicians had only good knowledge and 82.9% had no idea at all, whereas, in the same relation among the postgraduate clinicians, the majority portion (60.9%) had some knowledge followed by 26.1% had a good idea. Among the graduate clinicians 63.2% had no idea about the knowledge of metabolic; clotting abnormalities as well as other preoperative measures in case of emergency surgery followed by 29.0% had only some hazy knowledge, whereas, in case of postgraduate clinicians 60.9% had only hazy idea and only 32.6% had a good knowledge in such relation. In the question of preoperative antibiotic prophylaxis, steady state concentration as well as on the I/V bolus dosage, on graduate clinicians had a good idea and the majority 73.7% had no idea at all, whereas, among the postgraduate clinicians, the majority portion 47.8% had only some idea followed by 31.7% had no idea.

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Introduction

Preoperative preparation is a very important part of management for the patients who require surgery especially in case of emergency as well as critical. So, a very clean and clear idea of this aspect is very much necessary for the clinicians in such relation, as lack of it is one of the most vital risk factors for developing postoperative complications and definitely increases the mortalities as well as the morbidities. Besides, it decreases the cost benefit and effectiveness of the health care delivery system of the government, as for example- cost per patient per bed in a year. So, it is now a burning problem for the health care policy makers and may be a great threat for our health care delivery system to turn it into just dust in this sector in a very near future, if we not pay proper attention in this subject just now to prevent this critical problem. In case of surgically critically ill patients, according to the availability of time for preoperative optimization, there are five basic preoperative windows.¹⁻⁴

The 4 minutes window:

This is the situation when the patient's only chance of survival is with immediate surgery. Surgery cannot await full resuscitation which has to proceed alongside it, as attempts at further resuscitation are proven futile for example, in the face of exsanguinations hemorrhage. The commonest scenarios are the massive hemorrhage from abdominal as well as from thoracic trauma, or from the rupture of a traumatic aneurysm. Once bleeding has been controlled, general resuscitation may then be appropriate before definitive surgery.

The 4 hour window:

Many gastrointestinal surgical emergencies are included in this category.

Patients commonly are fluid and electrolyte depleted. Baseline hematological and biochemical values can be obtained, and a chest X ray and ECG performed. Preoperative resuscitation to increase the oxygen delivery to all vital tissue reduces morbidity and mortality. During the delay, however, the underlying pathology will be deteriorating and timing surgery is important. Before surgical intervention the following thing should be ensured immediately:

a) Fluid and electrolyte replacement:

The success of fluid replacement may be monitored by:⁵

- Fall in pulse.
- Rise in blood pressure.
- Restoration of urinary output.
- Sustained rise in CPV to normal levels.

b) Correction of cardio-respiratory impairment:⁵⁻⁹

Goldman cardiac risk index

c) Correction of abnormalities of clotting¹⁻⁴.

d) Correction of endocrine abnormalities⁴⁻⁵

e) Prophylactic antibiotics coverage:

This is indicated in the environment of our hospital or in case of unclean, untidy emergency surgical cases as well as in our not properly sterile hospital environment to prevent the postoperative wound complications. To ensure the optimal level, the clear knowledge about the steady state concentration is very much essential.

The steady state concentration:¹⁰

Steady state is reached when rate in = rate out or when values associated a dosing interval are as the same as those in succeeding interval.

Plateau principle:

The time to reach the steady state is depended on the elimination half life of a

drug and is independent of dose size and frequency of administration.

Intensive care or high-dependency environment.⁹⁻¹⁵

These are necessary when a patient is cardiovascular instability, or has incipient, or established respiratory or renal failure. The definition of these units varies in different localities, as does the balance of medical supervision. Patients who require mechanical ventilation or dialysis are obviously candidates for this environment, but those in incipient cardiac, respiratory or renal failure are often have an improved prognosis if they can be transferred early to an environment where intensive monitoring as well as intervention are possible.

The 4 days window:¹⁻⁴

A delay of several days allows more formal preparation for surgery. A laparotomy for a non- strangulating bowel obstruction, surgery for obstructive jaundice or an amputation for irreversible ischemia for a limb may also fall into this category.

The 4 weeks window:

Most cancer surgery can be delayed for several weeks, without detriment. This allows better medical control of severe hypertension or other cardio-respiratory pathology. So, in fact it has almost no significant price for any surgical emergency.

The 4 months window:

Truly elective surgery should be postponed if the risk of surgery is significant and can be reduced with the passage of time, or when some physical or surgical prior intervention will reduce the overall risk. During the first 6 months after a myocardial infarct the risk of a further infarct in the perioperative period is increased by 30%. A delay of at least 6 months should be observed if the underlying condition will not deteriorate significantly during this period. So, it

bears almost no important value for emergency surgery at all.

Methods

This is a descriptive type of epidemiological study. Place of study was the general surgery indoor department, ward no-24, 25, 26, 27, unit-1, 2, 3, Chittagong Medical College Hospital, Bangladesh. Period of study was from 12 October 2008 to 15 June 2009. Study population included 122 clinicians in the general surgery indoor department, ward no-24, 25, 26, 27, unit-1, 2, 3, Chittagong Medical College Hospital. Sampling technique was purposive sampling

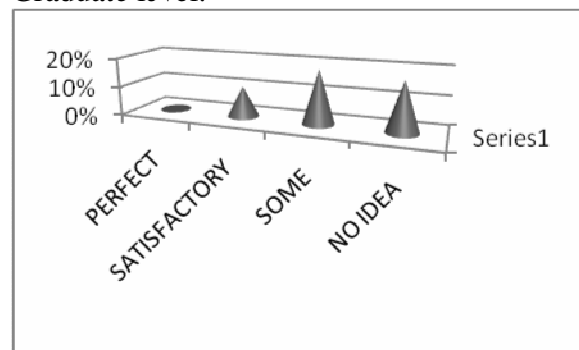
Results

Table I: Clinicians profile

Clinicians	Male	Female
Graduate	52	24
Postgraduate	26	20
n	76	46

Figures 1 and 2: Showing the on the emergency preoperative windows of the corresponding clinicians

Graduate level:



Post graduate level:

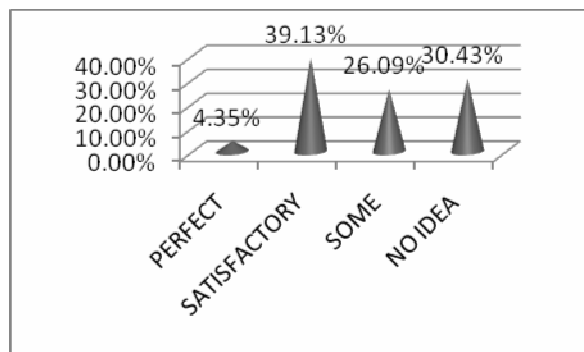


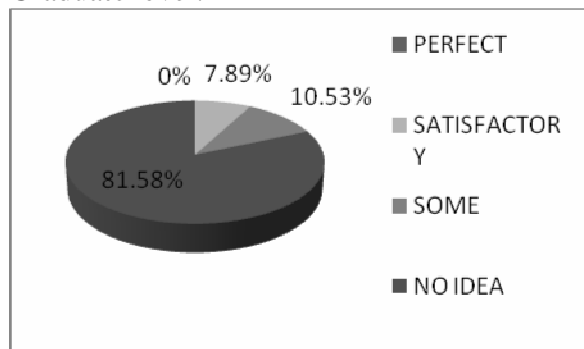
Table II: Showing the knowledge preoperative fluid and electrolyte replacement of the clinicians

Clinicians	Yes	No	No answer	P- value
Graduate	18	36	22	
SD	6.7	4.6	6.2	0.01
CV	8.8	6.0	8.1	
Post-graduate	32	12	2	
SD	2.1	5.0	6.5	0.01
CV	4.5	10.9	17.7	

Table III: Showing the knowledge of the clinicians about the key points of monitoring the success of fluid replacement

Clinicians	Perfect idea	Satisfactory idea	Some idea	No idea	P- value
Graduate	10	18	22	26	.05
%	13.16	23.68	28.95	34.78	
Post-graduate	18	12	15	1	.04
%	39.13	26.09	32.61	2.17	

Figure 3 and 4. Showing the idea of the clinicians about the “Goldman cardiac risk index” in case of emergency surgery
Graduate level:



Post-graduate level:

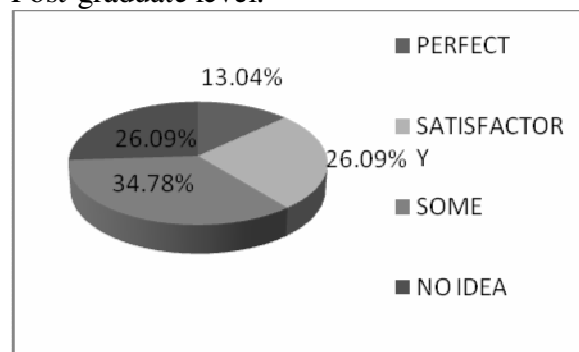


Table IV: Showing the knowledge about the respiratory resuscitation (RR) of any emergency surgical patient among the clinicians and anesthetic measures (AM) of the clinicians in case of emergency surgery

Clinicians	MCA			P - value
	Good	Hazy	No	
Graduate	6	22	48	.03
%	7.89	28.95	63.16	
Post-graduate	15	28	3	.01
%	32.61	60.87	6.52	
AP	Perfect	Satisfactory	Some	No idea
	Graduate	00%	0.9%	18.4%
Post graduate	13%	17.4%	47.8%	21.7%

Table V: Showing the knowledge of the clinicians about the metabolic, clotting abnormalities (MCA) as well as other preoperative measures in case emergency surgery, the idea of the clinicians on the antibiotic prophylaxis, steady state concentration as well as on the pre operative I/V bolus dosage

Level	Graduate			Postgraduate		
	No idea	Hazy idea	Good idea	No idea	Hazy idea	Good idea
RR	81.6%	26.3%	5.3%	13.6%	45.7%	52.2%
AM	82.9%	15.8%	1.3%	13.6%	60.9%	26.1%

Discussion

Though the sample of the study was very small (76 graduate and 46 postgraduate clinicians), the findings those were found

depicted a very alarming picture. It reflected the very miserable condition of the clinicians of the tertiary level of the health care delivery system of any developing countries like ours. This study revealed that among the graduate clinicians 71.1% had no idea about the question of (Emergency) preoperative windows followed by 18.4% had some hazy idea, whereas, in case of the postgraduate clinicians the majority of the portion (39.1%) had only satisfactory ideas followed by 30.4% had no idea at all in such connection. Here it was very important that the P-values were 0.001 which were highly significant. In the question of proper fluid and electrolyte replacement, the majority portion (47.4%) had no satisfactory answer and 29.0% had no answer at all among the graduate clinicians, whereas in case of postgraduate clinicians 69.57% had a satisfactory level of knowledge. Here the P-values were also significant. About 34.78% had no idea about the key points of monitoring the success of fluid replacement among the graduate clinicians followed by 29.0% had no idea, whereas, in case of post graduate clinicians 39.1% had the perfect idea in this relation and only 2.2% had no idea and here the P-values were also significant. In the relation to the knowledge of the clinicians about the “Goldman cardiac risk index” in case of emergency surgery, no graduate clinicians had any perfect idea and the majority 81.6% had no idea at all, whereas, in case of postgraduate clinicians the majority group 34.8% had only some idea followed by 26.1% had only satisfactory idea as well as the same portion had no idea of it at all. In the question of preoperative respiratory resuscitation of any emergency surgical patient, 1.6% of graduate clinicians had no idea and only 5.3% had good knowledge about it. In the same association among the postgraduate clinicians 52.2% had a good knowledge followed by 45.7% had only some hazy idea and in case of preoperative anesthetic measurements for the emergency

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