

Where are we?: Survey on current practice in managing acute kidney injury in critically ill patients in intensive care units in Sri Lanka.

Dr B W P Habaragamuwa
Consultant Anaesthetist, Base Hospital, Mawanella.

***Corresponding author:** budhi190@yahoo.com

Purpose

This electronic survey was designed to gather data on present practice on managing patients with acute kidney injury (AKI) in intensive care units in Sri Lanka.

Methods

A questionnaire with 14 questions was sent via e mail to 98 board- certified consultant anaesthetists. Participation in the survey was voluntary and anonymous.

Results

A total of 27(27%) consultants returned fully completed questionnaire. 14 (52%) participants were consultants from teaching/tertiary care hospitals and 12 (44%) had more than 10 years of experience. 19 (70%) consultants encountered more than 1 AKI patients per month. Frusemide was in the regime of AKI management among 21 (78%), whereas, low dose dopamine was almost out of practice. Although 25 (93%) had facilities for peritoneal dialysis, only 14 (51%) had facilities for haemodialysis in their hospitals, mostly outside the ICUs. 12 (44%) had haemofiltration units in their ICUs. However, it was underutilized due to poor supply of consumables and lack of trained staff. All found it difficult to find intensive care beds with haemodialysis/haemofiltration facilities in other hospitals. Sepsis (70%) was the most frequently encountered cause of AKI.

Conclusion

Overall, this survey shows that facilities for the management of critically ill patients with AKI are limited, and it is the right time to take necessary actions by relevant bodies.

Keywords: acute kidney injury, critically ill, haemodialysis/ haemofiltration

Introduction

Acute renal failure, now called acute kidney injury (AKI), is one of the potentially life threatening complications encountered in critical care units. Incidence varies due to heterogeneity of diagnostic criteria, and AKI is regarded as an independent risk factor for mortality in critically ill patients.

Managing critically ill patient with AKI is not an easy task for consultant anaesthetists who are working in various levels of hospitals in Sri Lanka. Facilities and expertise available vary in these hospitals, thus patients may need to be transferred to hospitals with better facilities in order to provide renal support.

Aim of this survey is to analyze the data on managing patients with AKI in intensive care

units managed by Consultant Anaesthetists in Sri Lanka.

Methods

The survey was conducted electronically by sending a questionnaire to 98 board certified consultant anaesthetists in Sri Lanka whose e mail addresses were available to the College of Anaesthesiologists of Sri Lanka. Participation was voluntary and anonymous.

The survey consisted of 15 questions, and 14 were multiple-choice type which covered three areas as follows.

1. Three questions on demographics and information about their place of work.
2. Nine questions on management of patients with AKI and facilities available.
3. One question on most frequent cause of AKI they encountered.

Last question was to write their comments and suggestions with regard to the management of patients with AKI in intensive care units.

Results

Out of the 98 consultants, 27 (27%) returned a fully completed questionnaire. All participants were consultant anaesthetists in active service who are looking after intensive care units of their hospitals. The demographic data of the respondents are presented in Table 1.

Table 1: Demographics and type of work place data

Level of Hospital		
Teaching Hospital	10	37%
Tertiary care Hospital	4	15%
Provincial General Hospital	3	11%
District General Hospital	5	18%
Base Hospital	5	19%
Private Hospital	0	0%
Years of experience as a consultant		
< 1yr	2	8%
>1 yr <5yrs	9	33%
5 - 10 yrs	4	15%
>10 yrs	12	44%
Type of ICU		
Multidisciplinary	17	63%
Medical	1	4%
Surgical	7	26%
Paediatric	0	0%
Specialized	2	7%

Management practices and facilities available

19 (70%) participants encountered more than one AKI patient per month. Among them, 5 consultants encountered AKI patients every week.

Intravenous frusemide was used in oligouric/anuric AKI by 21 (78%) consultants, and 17 (63%) practiced bolus followed by infusion of frusemide. 6 (22%) consultants never used frusemide in AKI (Figure 1). As expected, 26 (96%) participants did not use low dose dopamine on AKI patients.

25 (93%) respondents had equipment facilities and trained staff for peritoneal dialysis. However, only 14 (51%) had facilities for haemodialysis in their hospitals. Out of this 14, only 3 (21%) had haemodialysis within the intensive care units. Interestingly, 12 (44%) had haemofiltration units in their ICUs (Table 2).

Figure 1: Use of Frusemide in oligouric/anuric AKI

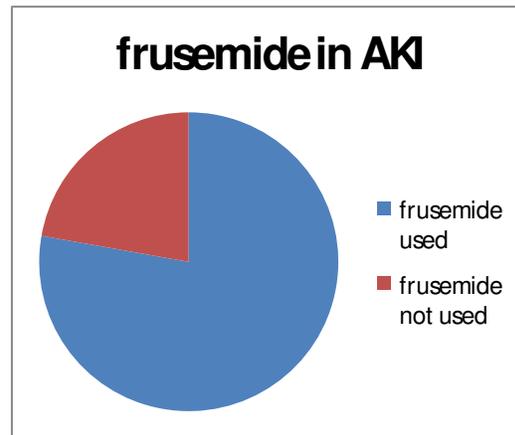


Table 2: Haemodialysis/ Haemofiltration facilities

Facilities for haemodialysis (HD)	Number	Percentage
Yes	14	52%
No	13	48%
Place of HD facilities		
Within the ICU	3	21%
Outside the ICU	11	78%
Haemofiltration facilities		
Yes	12	44%
No	15	56%

20 (74%) consultants found it hard to find an ICU bed with haemodialysis/haemofiltration facilities when required, with 10 (37%) finding it very difficult, 7 (26%) found it difficult and 3 (11%) found it impossible (Table 3). Not surprisingly, all participants were in an agreement that haemodialysis/haemofiltration facilities should be available within the intensive care units.

Table 3: Feasibility of getting a bed with haemodialysis/haemofiltration facilities in other hospitals

Getting a bed with haemodialysis/haemofiltration facilities in other Hospitals	Number	Percentage
Impossible	3	11%
Very difficult	10	37%
Difficult	7	26%
Neither difficult not easy	4	15%
Easy	3	11%

Sepsis was the most frequent cause of AKI according to the experience of 17 (70%) participants (Table 4).

Table 4: Most frequent cause of AKI

Most frequent cause of AKI	Number	Percentage
Sepsis	17	70%
Snake bite	1	4%
Cardiac failure/ hypotension	2	7%
Leptospirosis	3	11%
Other poisoning - heavy metal	1	4%
Other	1	4%

17 (63%) respondents have given their comments and suggestions. According to the majority (96%) of consultants who were working in non teaching/tertiary care hospitals, only reason, apart from neurosurgical or cardiothoracic management, for inter hospital transfer of ICU patients was lack of renal replacement therapy. All consultants, who were working in ICUs with haemofiltration units, commented that they cannot utilize their haemofiltration units effectively due to poor supply of consumables and lack of trained staff. All were in agreement that, haemofiltration / haemodialysis facilities should be available in teaching/tertiary care hospitals and provincial general hospitals. One suggested having separate nephrology intensive care unit in each main hospital.

Discussion

This study is the first electronic survey done among consultant anaesthetists in Sri Lanka. Although only 28% responded, results of this survey cannot be undervalued as 52% of respondents were from teaching/tertiary care hospitals and 11% from Provincial District hospitals where most of the AKI patients are being managed. Furthermore, 44% of the respondents had more than 10 years of experience as a consultant and 78% encountered patients with AKI more than once a month. The current evidence from randomised controlled trials and observational studies suggests that frusemide is unlikely to be able to improve renal function or mortality directly.¹ However, pharmacology of frusemide and observational data suggest that patients with mild AKI will respond to frusemide better than

patients with severe AKI, and if used carefully, it may still have a clinical role in some patients with mild AKI.^{2,3} According to the survey, 21(78%) consultants used frusemide on oligouric/anuric AKI patients. Frusemide is quite useful, especially in units with no renal replacement therapy, to maintain some urine output in these patients. Even though it does not improve the mortality directly, it certainly helps to ease the fluid balance and overall management of these patients.

According to the current evidence low dose dopamine has no place in AKI⁴, and simply it acts as an inotropic agent to improve the perfusion of the kidney. 96% of participants followed the evidence.

93% of consultants responding had facilities for peritoneal dialysis. However, peritoneal dialysis is not the best when it comes to management of critically ill patients with AKI. It has very low efficiency and high failure rate compared to haemofiltration/haemodialysis, and contraindications to peritoneal dialysis are commonly encountered in this group of patients.

Even though 14 had haemodialysis in their hospitals, only 3 had the facility within the intensive care units. It is a well known fact that transferring critically ill patients out of intensive care units carry significant amount of risk. Therefore, it is better to have one or two beds with haemodialysis facilities in every intensive care unit in teaching/tertiary care hospitals unless they are equipped with haemofiltration.

Debate continues with regard to the best renal replacement therapy for critically ill AKI patients in the literature.⁵ Continuous veno-venous haemofiltration (CVVH), intermittent haemodialysis (IHD) and slow low efficiency daily dialysis (SLEDD) are on the race, and each has its own advantages and disadvantages. Haemodynamic stability of the patient and more physiological way of handling solutes are the main advantages of CVVH. Although 12 consultants had CVVH units, majority was underutilized due to lack of consumables and trained staff.

Overall results show that, facilities available for the management of AKI in critically ill patients, particularly renal replacement therapy, is not up to the standard. Although consultants have

enthusiasm, they found it difficult to materialize what they already have due to poor supply of consumables and inadequately trained staff. The findings suggest that it is the right time to take necessary actions, even at policy level, to improve facilities in renal replacement therapy by relevant authorities. Since anaesthetists are looking after majority of intensive care units in the country, Faculty of critical care medicine of The College of Anaesthesiologists in Sri Lanka could bring the relevant parties to a common table in order to initiate the process.

This survey has few limitations. Firstly, only 28% participated though mostly from teaching/tertiary care hospitals where most critically ill AKI patients are managed. Secondly, data on mortality associated with AKI in critically ill patients were not collected. Data from other countries show that a 30%-50% mortality in patients with AKI is associated with sepsis. As sepsis (70%) was the most frequent cause of AKI in this survey, one can assume same or a higher mortality. Thirdly, more than one consultant from each hospital, particularly tertiary care/teaching hospital, may have responded and it could have some influence on the final results of the survey.

Conclusion

Acute kidney injury is not infrequent among critically ill patients, and if associated it carries high mortality. Facilities available to manage such patients, particularly renal replacement therapy, are either underutilized or not available. It is the right time to take necessary action by relevant responsible bodies to improve such facilities in order to provide better care to the patients.

Acknowledgement

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Dr Carmel Wijesekera
Secretary, Education,

Office: 2672327, Web site: www.srilanka-anaesthesia.com
