

Analysis of dead on arrival at emergency department of Patan Hospital

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ABSTRACT

Introduction: Prehospital care plays an important role in reducing the death on arrival from injuries and critical illnesses. This study is aimed to analyze the prevalence of the patients who were brought dead on arrival at emergency department of Patan hospital.

Method: This is a cross sectional study conducted by reviewing the record of patient who were brought dead to emergency department. The records from 15th June 2017 to 15th May 2018 were analyzed.

Result: Total 48,853 patient visited Patan Hospital emergency department in one year. Out of these patients 98 (20 out of 10,000 patients) had mortality in emergency department while 241 (49 out of 10,000) were dead on arrival to emergency department.

Conclusion: Twice the number of patients are dying on the road compare to inside emergency department.

Keywords: dead on arrival, emergency, mortality

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INTRODUCTION

Prehospital care plays an important role in reducing the death on arrival from injuries and critical illnesses.¹⁻⁴ However, A very few of the patients who come to hospitals receive the prehospital care in Nepal.⁵ Most of the patients are brought to emergency department in public or private vehicles, and very few of them are brought to hospitals by well-equipped ambulances.⁶ There is a significant difference in prevalence of Death on arrival (DOA) in a resourceful setting than in poor resource setting.⁷⁻⁸ Increased prevalence of DOA indicates a need of improving the prehospital care.⁸ Therefore, this study is aimed to analyze the prevalence of the patients who were brought dead on arrival at emergency department of Patan hospital.

METHOD

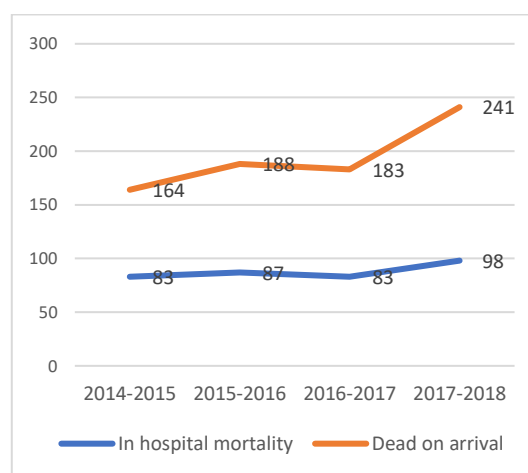
This is a cross sectional study conducted at emergency department of Patan Academy of Health Sciences (PAHS), Patan Hospital, Lalitpur, Nepal. This is a tertiary care hospital of one of the three district (Kathmandu, Bhaktapur and Lalitpur) inside Kathmandu valley, which is the capital city of Nepal. Record of patient who were brought dead to emergency department from 15th June 2017 to 15th May 2018 were analyzed to find out the prevalence of DOA. Excel sheet was used to record data and DOA were further categorized on the basis of independent variables; month of arrival, age, sex and the location from where the patient was transferred. Incomplete data was defined as the record that do not have above mentioned independent variables, and those were excluded from the study.

Distance between hospital and patient's place of residence was estimated using Google map. This may not be very accurate as the exact address was not available, however the location was available, so we took a landmark from that place like school, religious place or park to Patan Hospital. Death on arrival was defined as those patients who are either declared dead upon arrival to emergency without resuscitation or those who died after failed resuscitation within 15-60 minutes of resuscitation upon arrival to emergency department.^{7,9,10} Data on mortality inside emergency department was also collected for analysis. Mortality in emergency department (MED) was defined as need of resuscitation after 60 minutes of arrival to emergency department. This did not include mortality after patient was being shifted to the ward or mortality at home upon discharge from the

hospital. To find out the trend, total DOA and MED was traced from 2014. Descriptive statistics was used to analyze data.

RESULT

Total 48,853 patient visited emergency department of PAHS in one year. Out of these MED was 98 (20 per 10,000 patients) and DOA was 241 (49 per 10,000). The mean ratio of MED and DOA of four years from 2014 to 2018 was 2.2 (SD+0.2). The difference in MED and DOA over four years was statistically significant (Figure 1) in this study.



Variance=1088.66, df=3, t stat=6.29, p=0.008(two tail)

Figure 1: Comparison of mortality in emergency department (MED) and dead on arrival (DOA) from the year 2014-2015 (June-May) to 2017-2018 (June-May).

Out of those 241 DOA, 214 records were analyzed. Twenty-seven were excluded as their records were incomplete. Male were 137 (64.2%) and female were 77 (35.8%), mean age of patient was 56.7 years (median 62 years), mean age of patient in age group less than 45 years was 25.2 years (median 30 years) and that of age group more than 45 years was 69.6 years (median 71 years). Mortality contribution by age group less than 45 years was 62 (29.4%) and rest from age group more than 45 years. The patient visiting from the Lalitpur district was from the mean distance of 3.6 kilometers, from within the valley was from 8.8 kilometers and those from outside valley was 115.3 kilometers. Total 168 (78.5%) patients were from the Lalitpur district, 20 (9.3%) of patients were from Kathmandu and Bhaktapur and rest were from outside valley. Most of the mortality in the year 2017-2018 were observed in the month of October to December (Figure 2).

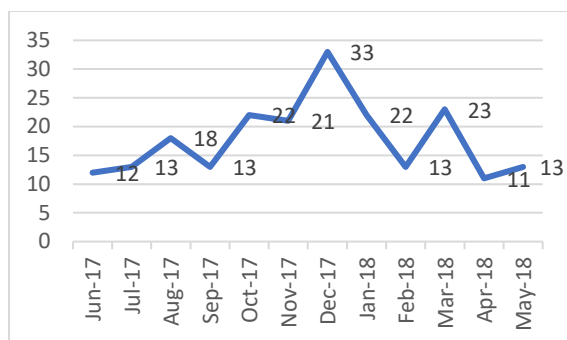


Figure 2: Distribution dead on arrival over one year

DISCUSSION

Our study clearly showed that there were twice (2.2; SD±0.2) the number patients who are dying on road compared to those who died in hospitals. A prospective observational study done at Patan hospital on modes of transportation for patients presenting to emergency of Patan hospital showed that only 9.9% of the patients had arrived in ambulance. Others had used taxi (53.6%), bus (13.5%) and private vehicle (11.4%).⁶ Another study done by Sneha et al in 2011 at patan hospital shows that 12% of people use ambulances and 47% uses taxi for coming to Patan hospital.¹¹ So, it is highly possible that most of the patients who die on road did not receive the proper prehospital care while being transferred. Even those who were transferred from the ambulance do not get optimal care. As it is evident that amongst the ambulances in the Kathmandu valley most of them are unable to put medical equipment and paramedics in it.⁵ This study however has not analyzed the clinical condition of the patient and their underlying medical condition of the patients who were DOA. Further we do not know the exact time of the death and whether the death was on the way to the hospital or at home. This can be the confounding factor in this study.

Our study showed that amongst the DOA majority were male patients and from a productive age group, mean age of DOA was 56.7 years. Most of them were from Lalitpur area 78.5% and mean distance they travelled was 3.6 kilometers. And the maximum distance they have travelled is 115.3 kilometers covering such a wide range of population but without proper prehospital care. A similar study done in Pakistan by Munawar Khurseed showed that there was a significant amount of burden of dead on arrival at Emergency department. And most of them were at productive age group.⁸ Amongst DOA, large proportion of patients belonging to productive age group, again

concludes that better pre hospital care could have saved many lived.

This shows that there is a need for prehospital services in Nepal so as to save as many lives as possible. Though this study still has its limitations like we are still not known about the sign and symptoms of the patient at home and did these patients received any kind of medical interventions on the way to hospital. So further more studies are required to mark us clear about it.

CONCLUSION

About twice the number of patients are dying on the road compare to inside emergency department. This helps us in hypothesizing the fact that there is need of bridging health of Nepal with pre hospital care.

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