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To Study the Profile of Children Admitted in Pediatriaic Intensive Care Unit of a Rural Medical College, Hospital

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Abstract –

- ***Background: The main aim of PICU is the surveillance and support of vital organ function in critically-ill or injured children who are at risk for organ dysfunction. Children are the most precious beings in our lives, but they are very fragile and easily succumb to disease and can have life threatening attacks in minutes. Advances in knowledge and technology of medical science have dramatically improved the prognosis for the critically-ill children. The main goal of pediatric intensive care unit (PICU) is to significantly decrease the mortality.***
- ***Methods: All demographic data like Name, Age, Sex, etc. will be entered in a revalidated proforma. All the data will be entered into excel sheete.***
- ***Results: a total of 305 patients admitted in the PICU of AVBRH, Sawangi were observed. Maximum number of patients (65.9%) were in the age group of 0 to 4 years. major system involved in most of the patients was central nervous system comprising of 35.4 The mortality rate in our PICU is 9.18 %.Maximum deaths were due to sepsis, shock and bronchopneumonia.***
- ***Conclusion: This study analyses the clinical profile, management and outcome of the entire patient were admitted in the PICU of AVBRH, HOSPITAL between 2016 to 2017. This can serve as the basis for developing dedicated and new protocols for the caregivers in an effort to improve the outcome of critical illness. It would also enhance the cost effectiveness.***

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INTRODUCTION

According to the World Health Organization, the major causes of death in under-five-year-old children in developing countries (Thorburn, et. al., 2001) are preventable and curable. Improving outcome is possible by well-equipped and well-staffed intensive care units, since dramatic decreases in mortality and morbidity have been documented by such measures. (Tilford, et. al., 1998. Downes, 2009) Intensive care could reduce mortality rates by 15% to 60% (Pollack, et. al., 1997) and many studies have demonstrated its unquestionable benefit (Gemke and Bonsel, 1995).

Well-equipped intensive care units staffed with intensivists have shown better outcomes (Pearson, et. al., 1997. Tilford, et. al., 2000)

The development of pediatric intensive care has contributed to improved survival rates in children with critical illnesses (Bellomo, et. al., 2000). The goal of PICU is the surveillance and support of vital organ function in critically ill or injured children who are at risk for organ dysfunction (Filler, 2001). There are references that support better outcome of PICU patients in tertiary centres, which led to the development of a centralized system of PICUs worldwide.

Collection, analysis, and interpretation of relevant objective data on the utilization of ICU beds will help plan for reducing the length of ICU stay and facilitate covering more patients who require this care.

The establishment of PICU has tremendously improved the success rate in saving critical patients. In a hospital containing PICU patients and those who have potential to deteriorate into critical conditions will be sent to PICU for intensive treatment and monitoring. Hence this study will

help in determining the etiology, treatment and outcome of all the children in the PICU.

The goal of PICU is the surveillance and support of vital organ function in critically-ill or injured children who are at risk for organ dysfunction.

MATERIALS AND METHODS:

Type of Study – Prospective Observational Study

Sample Size**: 305**

Duration of Study: 1ST August 2016 to 31st July 2017

PLACE OF STUDY

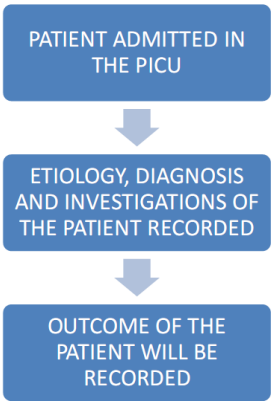
This study shall be conducted at Pediatric Intensive Care Unit, Department of Pediatrics Avbrh Wardha from August 2016 to July 2017.

Inclusion criteria:

- All the children admitted in the PICU

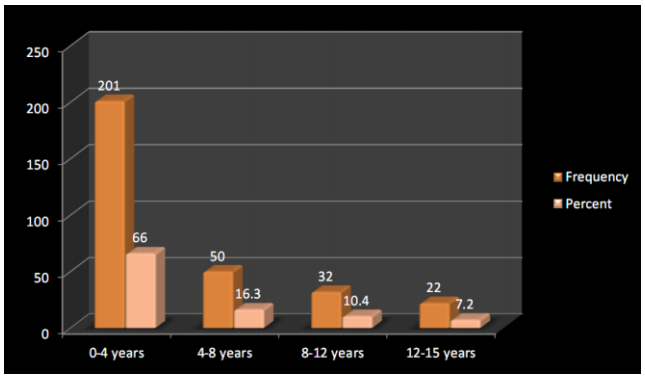
Exclusion criteria:

- There shall be no exclusion criteria.



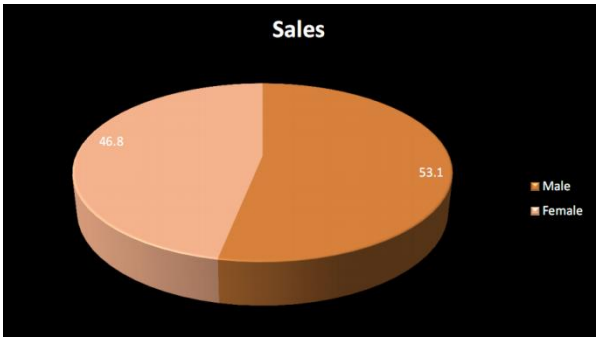
RESULTS:

Table 1. Age Distribution



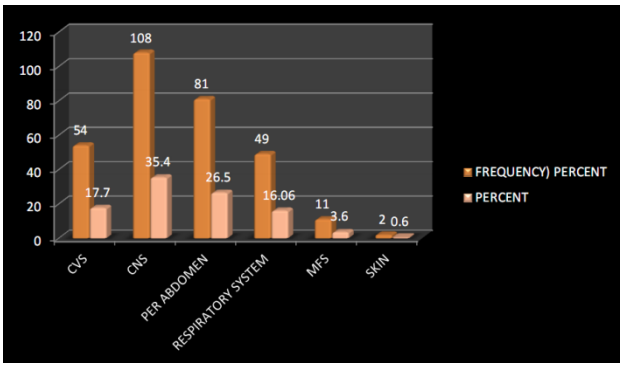
In this study, out of 305 patients, 201 (65.9%) were below 4 years, 50 patients (16.3%) were in the age group of 4 to 8 years, 32 patients (10.4%) were in the age group of 8 to 12 years and 22 (7.2%) were in the age group of 12-15 years

Table 2. Gender Distribution of Cases



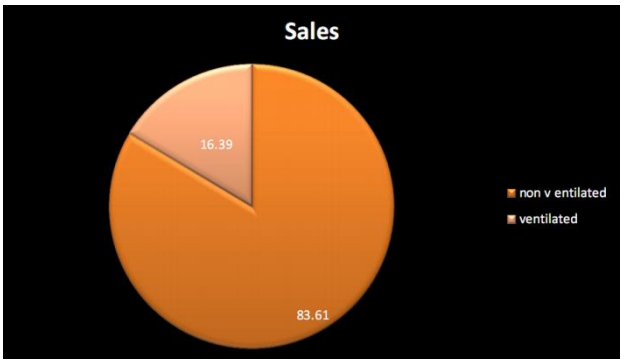
OUT of the total cases, there were more number of males 162(53.1%) and the females were 143 (46.8%).

Table 3. System involvement of the cases



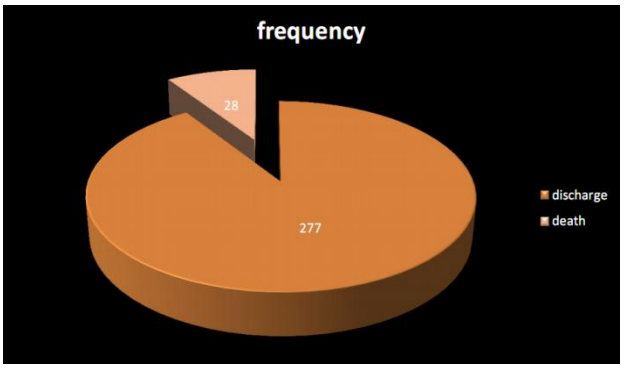
Out of all the cases, 54 patients (17.7%) had cardiovascular system involvement, and majority of the patients 108 (35.4%) had central nervous system involvement, 81 patients (26.5%) had involvement of gastro intestinal system involved, 49 patients (16.06%) had involvement of respiratory system, only 11 patients (3.6%) were from oral surgery and the least number of patients that is only 2 patients (0.6%) had involvement of skin.

Table 4. Ventilation Support Given To the Cases



Of all the patients admitted, 50 patients were ventilated (16.39%), 255 were not ventilated (83.61%).

Table 5. Final Outcome of the Admitted Patients



In our study, a total of 305 patients were admitted out of which 277(90.8%) patients were discharged and 28 patients died (9.18%).

The causes of death were as follows:

1. Bronchopneumonia
2. Pulmonary hemorrhage, sepsis
3. Intractable seizures
4. Septicemia, DIC
5. Septicemia, nephritic syndrome
6. Septic shock, chonic kidney disease
7. Tubercular meningitis
8. Renal failure, DIC, sepsis
9. Meningitis
10. DIC
11. Cardiogenic shock

DISCUSSION:

In this study, the profile and the outcome of tertiary sector PICU patients, illness severity and treatment characteristics and the investigation of relative mortality risk and possible outcome prediction factors were observed.

1. AGE GROUPS OF THE PATIENTS

This study had the maximum patients in the age groups of 0 to 4 years (65.9%). **Haque at. el., 2009).** also showed a close mean age range of 24 months (Haque and Bano, 2009).

2. SEX DISTRIBUTION

The preponderance of male sex was higher (53.1%) than that of the female sex (46.8%).This value was close to male sex value of 66% reported by **(Haque and Bano, 2009).** (Einloft, et. al., 2002) (56%) and Batista, et. al., 2015) (58%). also showed more number of males constituting to 63% of the admission. A study **by Bagga et al**. showed similar percent of males (69.2%), (Kapil and Bagga, 1993).

3. DURATION OF STAY

Out of all the admitted patients in the picu during this study, the maximum number of patients were admitted for 8- 10 days. (31.9%). Whereas a few patients had less than 1 day of stay (5.9%). A study by **Pollock et al** also showed longer duration of stay in the PICU (7.1%) (Pollack, et. al., 1987).

It was also quite similar to a study by **Khan et al** where the average length of stay was 9.7 days. On the contrary (Khan, et. al., 2006), a study **by Earan et. al.** showed mean duration of stay to be 2.21 days.

4. MAJOR SYSTEM INVOLVED IN THE STUDY

PICU setup in this study had most of the patients being admitted due to central nervous system causes (35.4%) followed by gastro intestinal etiologies (26.5%)and then due to cardiovascular and respiratory problems. There were also patients of post operative maxillofacial surgery but their length of stay and number was very less. This was similar to a study by **Earan et. al.** in which respiratory and central nervous system involvement was more 40.2%

5. INCIDENCE OF INVASIVE VENTILATION

Ventilatory support, mainly invasive ventilation is one of the major life saving interventions in PICU. Like, in this study, 16.39% of the children received invasive ventilator support.

But, a study by **Begum et. al.**, showed a total of 23% of the patients requiring invasive ventilation (Begum and Kumar, 2016) this difference might be due to the time period which was different in both the studies. Study on PICU patients by **Rukmani J. Kumar N.**, also showed 20.68% of the patiets requiring mechanical ventilation which was almost similar to our study (Rukmani and Kumar, 2017).

6. MORTALITY RATE OF THE PICU

The mortality rate in our PICU is 9.18 %. The rest of the patients were discharged after their stay in

PICU and after getting shifted out in the wards. In contrast to this study, a study by **Khurshid A** showed the mortality rate to be 19.07%

A very low mortality rate was shown **by Earn et. al.**, in their study

The mortality rates were also quite different from the study of **Bagga et al**, showing a mortality of 9.8% among long stay patients and 24.1% among short stay patients . These results were also quite the opposite of the results by **Pollock et al** who showed 46% mortality of the chronic patients.

These differences were arising because of the different specialist care at different PICU set ups. There is also difference between the management of different PICU in different set ups. Patient getting admitted have different underlying diagnosis. The mortality rate is also greatly dependent on the level of care and the expertise of the concerned specialist.

10. COMMON CAUSES OF DEATH

The major cause of deaths in the PICU was sepsis followed by shock, renal failure and DIC. Severe bronchopneumonia also was one of the leading causes of deaths in the PICU. Among the other causes of deaths were seizures, meningitis. This result was different from the study of **Earan et. al**, leading to maximum number of deaths due to respiratory causes. But the study by **Bagga et. al** again showed a similar result leading to septicemia as the as the major cause of death

CONCLUSION

- This study analyses the clinical profile, management and outcome of all the patient were admitted in the PICU of AVBRH, HOSPITAL between 2016 to 2017. This can serve as the basis for developing dedicated and new protocols for the caregivers in an effort to improve the outcome of critical illness.

REFERENCES:

Batista N.O., de Rezende Coelho M.C., Trugilho S.M., Pinasco G.C., de Sousa Santos E.F., Ramos-Silva V. (2015). Clinical-epidemiological profile of hospitalised patients in paediatric intensive care unit. J Hum Growth Dev: 25: pp. 187-93

Begum A., Shashikala, Kumar S. A. (2016). Prospective Study On Clinical Profile And Outcome Of Ventilated Children In A Pediatric Intensive Care Unit Of A Tertiary Care Teaching Hospital, T elangana IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 15, Issue 4 Ver. VIII, pp. 13-17.

Bellomo R., Chapman M., Finfer S., Hickling K., Myburgh J. (2000). Low-dose dopamine in patients with early renal dysfunction: a placebo-controlled randomised trial. The Lancet. 23;356(9248):2139.: pp. 2139–2143

Downes J.J. (2009). Development of Pediatric Critical Care Medicine—How Did We Get Here and Why?. Science and practice of pediatric critical care medicine: pp. 1-28.

Einloft P.R., Garcia P.C., Piva J.P., Bruno F., Kipper D.J., Fiori R.M. (2002). Epidemiological profile of sixteen years in a pediatric intensive care unit. Rev Public Health;36: pp. 728-33.

Filler G. (2001). Acute renal failure in children. Paediatric drugs. 1;3(11): pp. 783-92.

Gemke R.J., Bonsel G.J. (1995). Comparative assessment of pediatric intensive care: A national multicenter study. Critical care medicine. 1995 Feb 1;23(2): pp. 238-45.

Haque A., Bano S. (2009). Clinical Profile and Outcome in a Paediatric Intensive Care Unit in Pakistan. J Coll Phys Surg Pak, Vol. 19(8): pp. 534-5.

J. Rukmani1 J. Kumar N. (2017). Clinical profile and outcome of PICU in a tertiary care hospital in south India RA Journal of Applied Research ||Volume||3||Issue||05||Pages-902-907|| ISSN (e): 2394-6

Kapil D, Bagga A. (1993). The profile and outcome of patients admitted to a pediatric intensive care unit. Indian journal of pediatrics. ;60(1):5-10.

Khan H.I., Khaliq N., Afzal M.F. (2006). Paediatric intensive care unit: patterns of admissions. Professional Med J. 2006;13: pp. 358-61..

Pearson G., Shann F., Barry P., Vyas J., Thomas D., Powel C., et. .al. (1997). Should pediatric intensive care be centralised? TrendversusVictoria. Lancet.1997; 349: pp. 1213-1237.

Pollack M.M., Alexander S.R., Clarke N., Ruttimann U.E., Tesselaar H.M., Bachulis A.C. (1997). Improved outcomes from tertiary center pediatric intensive care: a statewide comparison of tertiary and nontertiary care facilities. Crit Care Med.; 19: pp. 150-159.

Pollack M.M., Wilkinson J.D., Glass N.L. (1987). Long-stay pediatric intensive care unit patients: outcome and resource utilization. Pediatrics. Dec 1;80(6): pp. 855-60.

Thorburn K., Baines P., Thomson A., Hart C.A. (2001). Mortality in severe meningococcal disease. Archives of Disease in Childhood. 2001 Nov 1; 85(5): pp. 382-5.

Tilford J.M., Roberson P.K., Lensing S., Fiser D.H. (1998). Differences in pediatric ICU mortality risk over time. Critical care medicine; 26 (10): pp. 1737-43.

Tilford J.M., Simpson P.M., Green J.W., Lensing S., Fiser D.H. (2000). Volume-outcome relationships in pediatric intensive care units.Pediatrics; 106: pp. 289-294.

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