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**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.3248674>Available online at: <http://www.iajps.com>**Research Article****IMPROVEMENT IN THE CLINICAL OUTCOME IN
PEDIATRIC ICU OF TERTIARY HOSPITAL IN PAKISTAN**

Dr Wajahat Rashid, Dr Shabina Ahmad, Dr Hamna Saleem

Jinnah Hospital Lahore

Article Received: April 2019**Accepted:** May 2019**Published:** June 2019**Abstract:**

Objective: This research work carried out to evaluate the effects of clinical consequence of seriously ill children after and prior employment of child in Pediatric ICU (Intensive Care Unit).

Methodology: This is retroactive audit of the children having age from one month to fourteen year of age who got admission in the Pediatric ICU during the twelve-month period in Jinnah Hospital Lahore. Child intensivist managed all the children in Cohort-1 whereas pediatrician manages patients in Cohort-2. The comparison of the patients carried out in the period of two twelve month durations.

Results: In the duration of this research work, three hundred and fourteen patients got admission with an average age of 2 years in Cohort-1. The range of the age of patients was from one month to fourteen years, 37.0% patients were available with lower than one year of age, 66.0% children were from male gender, Average scores of PRISM were 13.20 (from 3 to 39) whereas in Cohort-2, Ninety-nine patients got admission with an average age of twenty-nine months & 60.0% patients in this cohort were males. We found the same clinical identification categories in two cohorts. We found significant disparities in both groups for rate of mortality (35.0% vs. 14.0%), total stay in hospital (7.50 days vs. 3.20 days) & amount of the total admissions (three hundred and fourteen verses ninety-nine patients).

Conclusion: The collected information displayed that employment of skilled child intensivist for full time in tertiary care pediatric ICU has an association with the improvement in the outcome of seriously ill small age children.

KEY WORDS: Pediatric ICU, Association, Improvement, Intensivist, Employment, PRISM, Cohort.

Corresponding author:**Wajahat Rashid,**

Jinnah Hospital Lahore

QR code



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INTRODUCTION:

In accordance with the estimation of the World Health Organization, in each year greater than ten million children die, 99.0% deaths among total occur in the countries which are under development [1]. The main reasons of mortality in the children having less than five years of age are infections of respiratory system, disease of diarrhea & epidemic of malaria. With the provision of primary services for pediatric ICU which contain oxygen, intravenous access & fluid resuscitation, positive airway pressure, the professionals can save the lives of millions children in the countries which are under development as Pakistan. These types of improvements are not much expensive and they have the potential to be implemented in the non-developed countries on large scale to reduce the rate of mortality.

The development of the pediatric ICU has decreased the rate of mortality [2-5]. Different research works have displayed important positive impact on the dedicated physicians of intensive care units on the outcome of the seriously ill children as well as adults [6-8]. The main aim of this research work was to report the medical profile & consequence of the seriously ill children who got admission before & after the employment of child intensivist in the Pediatric intensive care unit in this tertiary care hospital, Pakistan.

METHODOLOGY:

We reviewed the medical records of admission of pediatric ICU in the year of 2008 & 2018 in Jinnah Hospital Lahore. Annual rate of admission is very high in the pediatric ward of this hospital. In the year of 2010, pediatric intensivist joined the pediatric ICU. We reviewed the data prior and after the employment

of the pediatric intensivist in this hospital. In the duration of 2018, pediatric intensivist managed all the care for children (Cohort-1, no of patients = 314). In the duration of the complete year of 2008, pediatrician managed all the patients with the help of the anesthesiologist (Cohort -2, number of admissions=99).

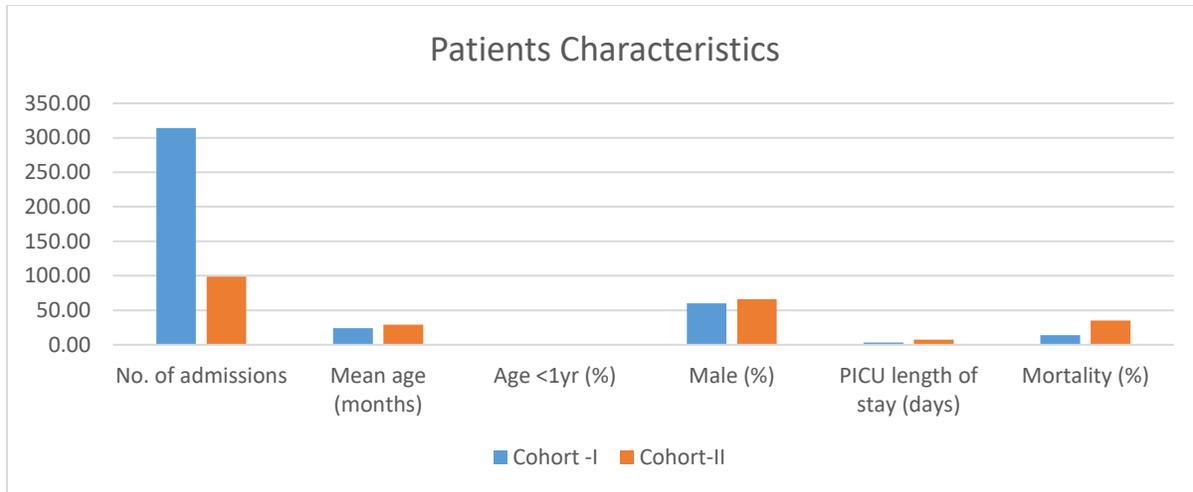
We collected the information about the patients from their medical records. The information of the patients contains as demographic information as age & sex, basic diagnosis at the time of admission, source of admission, total days in ICU, mortality in the hospital. In the duration of Cohort-2 period, all the patients underwent PRISM-3 score (most anomalous values within twenty-four hours after admission were in utilization) [9] & we recorded occurrence of NI (Nosocomial Infections) according to the definition of the NISS-10. SPSS V.14 was in use for the statistical analysis of the collected information. Student's T-test and/or Chi square test was in use for the comparison of the collected information. P value of less than 0.050 was the significant.

RESULTS:

Table-1 shows the traits of the patients of both cohorts. In Cohort-1, 314 children got admission in the pediatric ICU. There were 60% (n: 220) male patients. The average age of the patients was 2 years with a range from one month to fourteen years. Total 37.0% patients were available with lower than one year of age. The medical admission in emergency (46.0%) were very close to the amount of surgical admission as 54.0%. Thirty-four percent (n: 112) patients got admissions for cardiac surgery.

Table-I: Patients Characteristics

Variables	Cohort -I	Cohort-II
No. of admissions	314.00	99.00
Mean age (months)	24.00	29.00
Age <1yr (%)	0.37	0.32
Male (%)	60.00	66.00
PICU length of stay (days)	3.20	7.50
Mortality (%)	14.00	35.00

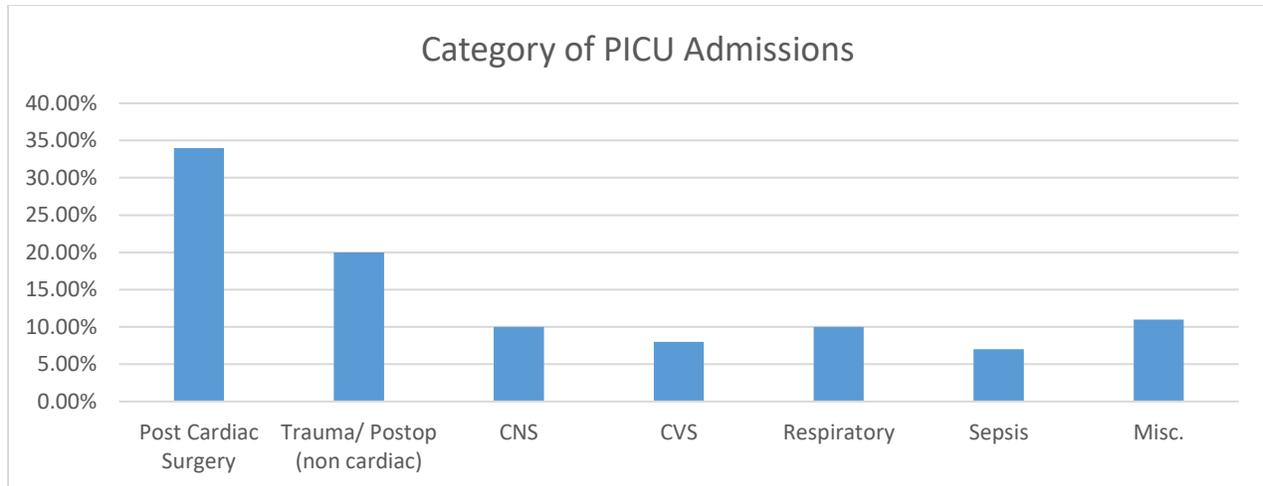


The most important diagnostic categories of patients with medical cases were neurological in 10.0%, respiratory in 10.0% & cardiac in 8.0% (Table-2). There were total forty-five deaths providing total rate of mortality as 14.0%. The patients who got referrals from different wards were present with high rate of mortality in comparison with the other admission sources due to delay in the identification of the complication. The average score of PRISM-3 was 13.20 (from 3 to 39). The mean duration of stay in pediatric ICU was 3.20 days (from 1 to 49 days). The rate of bed occupancy was ninety percent. Total 90% patients obtained mechanical ventilation whereas greater than 50.0% obtained vasoactive medicines.

In Cohort-2, there were total ninety-nine admissions. Over the previous 5 years, the rate of admission was varying from 87 to 135. The most important clinical diagnostic categories were similar as in Cohort-1 as infections, problem of respiration, cardiac issues & neurological complications. The rate of mortality was 35.0%. The comparison of the both cohort groups carried out for results. There was an important decrease in the rate of mortality from 35.0% to 14.0% & quick reduction in the duration of stay from 7.50 days to 3.20 days.

Table-II: Diagnostic Category of PICU Admissions

Category	Admissions (%)
Post Cardiac Surgery	34.00%
Trauma/ Post oper (non-cardiac)	20.00%
CNS	10.00%
CVS	8.00%
Respiratory	10.00%
Sepsis	7.00%
Misc.	11.00%



DISCUSSION:

Advancements in the facilities of pediatric ICU have improved the treatment and outcome of the seriously ill children getting treatment in the hospital. Various conditions which were life-taking are recently treatable. The establishment of the pediatric ICU carried out for the very first time in Sweden in 1950 [10]. In the duration of last twenty years, PCCM is now a mature clinical discipline well-recognized for the provision of services in West & then gradually spread out in many other regions of the world [11]. There is description of some strong experiences of Pediatric ICU from close countries as India & Malaysia [4, 5]. The age & sex traits of patients were much same in accordance with the research works about the same subject in other areas of the world. There were about equal amount of the medical & surgical patients in this research work in comparison with the pediatric ICU of the West where there are more admissions from the [13]. On the basis of the observations of this research work, we come to know that patient's care is very much similar to the pediatric ICUs of the West. This is due to the improvement in the health care facilities in this pediatric ICU. Some research works have elaborated the traits of the pediatric ICU administered by the general pediatricians from our country Pakistan and the rate of mortality was 29.0% [14].

Pearson in his research work suggested that the presence of the highly skilled pediatric intensivists can provide the high care with best quality [15]. This is the very first research work on the condition of the pediatric ICU in our country in accordance with our knowledge. The rate of mortality in our pediatric ICU was 14.0%. The rate of mortality in our Pediatric ICU is much comparable to the other research works with a range of mortality rates from 18% to 35% [16, 17].

There is also association of the improved outcomes with the in time identification of the seriously ill children in wards before entering into the pediatric ICU [18]. There is a great requirement of the high level training of pediatricians to provide best care for seriously ill to decrease the high rate of mortality.

There are some limitations of this research work as this research work is retroactive in nature, having very short periods, non-ability to diagnose the severity of NI due to not complete clinical records and non-availability of the advance technologies.

CONCLUSIONS:

The findings of this research work displayed that the presence of the skilled child intensivist for full time in the tertiary pediatric ICU has a positive impact on the seriously ill children who got admission in the pediatric ICU. The applications of such services in the countries which are under development like our country Pakistan, this should be a matter of great concern in health policy to decrease the rate of mortality & improvement in the rate of survival of children.

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