Original article:

Study of outcome of pediatric patients on ventilatory support: Observational study

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Abstract:

Introduction: Mechanical ventilation is a method to mechanically assist or replace spontaneous breathing. We planned present work with an intention to study outcome for ventilatory support in Paediatric age groups in India in rural scenario .

Material and methods: This study was done on patients who were admitted to Pravara Rural Hospital attached to Rural Medical College, Loni during the period of August 2011 toJuly 2013. We prospectively collected 80 patients admitted to hospital and who required ventilation. Detail recorded outcome was analyzed.

Inclusion criteria: All the patients in the age group of 1 month up to 12 years.

Exclusion criteria: Patient in the age group of < 1 month and >12 years and Patients with congenital malformations.

All the patients who requires mechanical ventilation will be enrolled in the study.

Observations and results : In the present study , out of 80 cases 62.5%(54) survived & mortality rate was 26(32.5%) out of which 13.75%(11) were female and 18.75% (15) were male.

Conclusion: There was no significant difference between outcome and gender {X2 with Yates correction=0.04 d.f=. 1}. There is significant difference between survival and death(P =0.05). In genral the present study had better outcome.

Keywords: Mechanical ventilation, Pediatric patients

Introduction:

Traditionally divided into negative-pressure ventilation, where air is essentially sucked into the lungs,or positive pressure ventilation, where air (or another gas mix) is pushed into the trachea. [1]It can be used as a short term measure, for example during an operation or critical illness (often in the setting of an intensive care unit). It may be used at home or in a nursing or rehabilitation institution if patients have chronic illnesses that require long-term ventilatory assistance.[2] We planned present work with an intention to study outcome for ventilatory support in Paediatric age groups in India in rural scenario.

Material and methods:

This study was done on patients who were admitted to Pravara Rural Hospital attached to Rural Medical College, Loni during the period of August 2011 toJuly 2013. We prospectively collected 80 patients admitted to hospital and who required ventilation.

Inclusion criteria: All the patients in the age group of 1 month up to 12 years.

Exclusion criteria: Patient in the age group of < 1 month and >12 years and Patients with congenital malformations.

Procedure

The study was approved by the Ethical and Research Committee of Rural Medical College, Loni. During

the study period, all patients presenting were screened for eligibility. The patients fulfilling the selection criterion were selected for the study and written informed consent(Annexure – 1) was obtained. Further they were subjected to a detailed history and clinical examination according to predesigned and pretested proforma . Once the detailed history and examination was done, Routine investigation was done, the specific and special investigations were done as and when indicated. All the patients who requires mechanical ventilation will be enrolled in the study. Written consent will be taken in the known language of patient

Observations and results:

Table No.1: outcome of pediatric patients on ventilatory support

Table No.10 :	**Male**	**Female**	**Total**
Survival	**34(42.5%)**	**20(25%)**	**54(67.5%)**
Deaths	**15(18.75%)**	**11(13.75%)**	**26(32.5%)**
Total	**49(61.25%)**	**31(38.75%)**	**80(100%)**

Out of 80cases those who were mechanically ventilated 67.5% (54) children survived and 32.5% (26) were died during mechanical ventilation. Amongst survival 42.5%(34)were male & 25%(20) were female. Out of 26 death 18.75% (15) were male & 13.75%(11)were female.

Table No.2: System wise distribution among all the survived and death patients.

SYSTEMS INVOLVED	**SURVIVAL**	**DEATH**	**TOTAL N = 80**
RESPIRATORY SYSTEM n1	9 (75%)	3(25%)	**12**
C.N.S. n2	18 (62.07%)	11(37.93%)	**29**
G.I.T. n3	7 (70%)	3(30%)	**10**
POISONING n4	6(66.66%)	3(33.33%)	**9**
OTHER ILLNESS n5	14(70%)	6(30%)	**20**
TOTAL	**54**	**26**	**80**

By applying X2 test outcome of ventilated patients and system involved are independent at 5% level of significance (p=0.05)

Table no 11 shows that Out of (26) death,37.93%(11) mortality found in central nervous system, followed by 35%(7) death due to other illnesses. Mortality seen in gastrointestinal system was 30%(3), In respiratory system mortality was 25%(3) and mortality seen in poisoning was 22.23%(3).

Discussion:

In the present study , out of 80 cases 62.5%(54) survived & mortality rate was 26(32.5%) out of which 13.75%(11) were female and 18.75% (15) were male. There was no significant difference between outcome and gender {X2 with Yates correction=0.04 d.f=. 1}. There is significant

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difference between survival and death(P =0.05). In genral the present study had better outcome.

In the study by Hsia SH(2012) showed Mortality 26.6%. [3] In the study by P Dahlem et al(2003) also showed mortality rate of 27.3%. [4] Canlas-Yamsuan M et al(1993) Showed mortality rate of 32% in their study. Monteverde E et al(2011) also showed that during short term mechanical ventilation mortality rate was 21%.[5]

All these studies were consistent with the present study.

Fraser J et al (1998) showed mortality rate of 40% in their study.[6] This may be due to 37% of patient had previous illness like bronchopulmonary dysplasia. Rivera R et al (1992) in their prospective cohort study of short term mechanical ventilation there were no mortality directly associated with mechanical ventilation and not consistent with the present study. [7]

Benjamin PK et al (1990) showed mortality rate of 7% in patients who were mechanically ventilated for <7days which was lower than the present study.[8]

Largest group of patient in the present study was in Central Nervous System 29(n2) (table no 12) out of this 11(37.93%) died and 18(62.07%) survived. Outcome in present study was statistically significant (P =0.05).Out of this 10(34.48%) was of bacterial meningitis of which 4(13.79%) died & 6(20.69%) survived. In the present study there were patients of Dengue Hemorrhagic Shock 7(35%) who required mechanical ventilation out of which 4(20%) died & 3(15%) survived. Study by Ranjit S et al(2005) on Dengue Hemorrhagic Shock showed mortality rate of 16.6% by using standard WHO protocol for DHS[112]. Both the studies were consistent with the present study.

Conclusion: There was no significant difference between outcome and gender {X2 with Yates correction=0.04 d.f=. 1}. There is significant difference between survival and death(P =0.05). In genral the present study had better outcome.

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