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Changing Trend in PICU Admissions- Threat to Public Health

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Abstract: *This study is aiming to find out the recent trend in PICU admission because of the resurgence of dengue and like illnesses. This is a retrospective study of case records of PICU and HDU in a tertiary level referral teaching hospital in Western Tamil Nadu over 6 months from January 2017. All cases fulfilled admissions criteria were included. Among total of 1066 admissions in PICU and HDU, 725 cases were admitted with VHF (fever, thrombocytopenia, elevated HCT, clinical, lab, and radiological evidence of plasma leakage), Constituting 68%.Other cases admitted were 32%. Mostly were neurological emergencies. Comparing to the same months of previous year there is 30% increase in PICU/HDU admissions due to VHF/dengue like illnesses. Correspondingly 20% reduction in cases due to other causes.72 died among 1066 cases. Death rate of 6.7% and 2% of the deaths were (22 cases) attributed to VHF/like illnesses without any co-morbid or pre-existing chronic illnesses. Hence this 2% is preventable mortality and there is an urgent need to increase the health recourses to cope with this increasing demand. In future PICU/HDU should we well equipped with facilities to manage these VHF like illnesses.*

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I. Introduction

Traditionally PICU and HDU admissions are mostly due to respiratory emergencies followed by neurological emergencies. A Data from ICH Chennai in January 2007 showed 75 cases were Respiratory, 30 were neurological, 50 were septic shock, 22 were cardiac, 5 were dengue, 2 from poisoning and 10 were ADD, After 10 years the trend is totally changed. After the inclusion of newer vaccines like Hib introduction in government and private immunization schedule, respiratory emergencies came down, like wise diarrheal cases also. In contrast there is increase in the admissions due to vector borne diseases like dengue and like illnesses. Our study is aiming to analyse this issue.

II. Materials And Methods:

Retrospective study of case records in PICU and HDU over 6 months from 2017 January to 2017 June were conducted. All admissions from 2 months to 12 years fulfilling the admission criteria were included. None excluded. All case sheets were analysed for the morbidity profile, co morbid conditions, cause of death and tabulated as charts and tables.

III. Results:

During this study period total of 1066 cases were admitted in PICU and HDU fulfilled the admission criteria. Table 1 showed the causes of admission.

Table 1: Causes of admission in PICU/HDU (other than VHF)

S. No	Description	January	February	March	April	May	June	Total
	Total admissions	61	66	63	46	62	43	341
1	RS – pneumonia	7	7	5	4	6	2	70(20%)
2	RS – asthma	6	5	4	3	4	4	
3	RS – airway obstruction	2	1	3	2	3	2	
4	Sepsis	12	17	12	8	14	6	69(20%)
5	Hypovolemic shock	6	5	6	4	3	2	26(7.6%
6	CVS – cardiac failure	4	6	4	4	3	4	37(11%)
7	CVS – cyanosis	3	2	3	1	3	0	
8	CNS – acute CNS infection	8	8	9	8	7	6	75(22%)
9	CNS – seizure	5	4	5	4	6	5	

	disorders							
10	Poisioning	6	5	4	5	6	4	51(15%)
11	Snake bite envenomation	2	1	2	1	3	0	
12	Scorpian sting envenomation	2	2	3	0	2	3	
13	GIT, Liver, Renal	3	2	1	2	1	3	12(3.5%
14	Hematological, Immune related, Anaphylaxis.	1	1	2	0	1	2	7(2%)

Table 2: Pediatric Department Statistics 2017

S.No	Description	January	February	March	April	May	June	Total
1	Total admissions	400	424	406	312	389	430	2361
2	VHF admissions in PICU and HDU	130	125	122	93	101	154	725
3	Other cases admission in PICU	61	66	63	46	62	43	341
4	Deaths in PICU Total Other causes Suspected/proved dengue and VHF without any previous comorbid conditions	9 6 3	12 11 1	15 10 5	10 8 2	13 6 7	13 9 4	72 50 22
5	Percentage of VHF among total ICU	68.4%	65.4%	65.9%	66.9 %	61.9%	78.1%	68%

Table 3: Place wise mortality statistics among dengue/like illnesses

S.No	**Place**	**Numbers**
1	**Tirupur**	**9**
2	**Coimbatore**	**3**
3	**Udumalpet**	**2**
4	**Pollachi**	**2**
5	**Erode**	**1**
6	**Namakkal**	**1**
7	**Annur**	**1**
8	**Palladam**	**1**
9	**Ooty**	**1**
10	**Valparai**	**1**

Among 1066 cases, 725 cases were VHF (WHO criteria for VHF- fever, thrombocytopenia, increase Hematocrit, clinical and lab, radiological evidence of plasma leakage) constituting 68% of PICU/HDU admissions and proved cases were 447. \total death in PICU was 72 (6.7%) and among this 22 cases were belonging to VHF and like illnesses (2%) without any pre existing illnesses or co morbid conditions. Proved dengue deaths were 6(0.8%). Majority of VHF cases from Tirupur Dt died (9 cases). Hence 30% mortality in PICU attributed to VHF and like illnesses that is preventable causes.

IV. Discussion

Comparing to previous year same period 30% increase in VHF like illnesses have got admitted in PICU/HDU, and 20% reduction in all other cases noted. However death rate remains unchanged. Hence this is the right time to change our policies. Health authorities should concentrate more on this issue. We have to formulate, strict preventive and early diagnostic and treatment strategies to prevent PICU/HDU admissions due to preventable causes like VHF/Dengue. The therapeutic margin is very narrow in these cases. That is all cases needs close monitoring because, all of them will develop either shock or respiratory distress. Critical care is provided to all and the mortality is also unpredictable as no known drug or treatment is proved to alter the natural course of the VHF disease[1]. Management is mostly supportive with close monitoring of vital signs. This poses tremendous load on health expenditure, because of more utilization of resources and manpower for critical monitoring.

V. Conclusion

After the inclusion of vaccines like HiB, and similar other strategies respiratory emergencies are in decreasing trend and majority of admissions in PICU/HDU are VHF like illnesses. This trend is now observed in our place. The scenario might be different in other regions where the vector born diseases are less.

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