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Morbidity Pattern in Medicine and Paediatric Patients in Tertiary Care Hospitals

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Abstract

Background: Indoor patient admission leads to higher costs of treatment as well as loss of daily wages for patients, as compared to OPD based treatment. It also makes patients vulnerable to hospital acquired infection. Thus, it is important to know commonest morbidity which demands admission in various age groups.

Objective: Age & Sex specific morbidity pattern in tertiary care hospital. Identify the reason for referral to higher hospital and the duration of stay.

Methods: The study design was cross sectional, done in tertiary Care Hospital with help of semi-structured pilot tested questionnaire from 20th January 2020 to 16th February 2020. A total 141 patients were selected for purpose of study. The data obtained were entered into the statistical package for scientific solutions (SPSS) version 20.0 spreadsheet and analyzed.

Results: there were no specific difference in morbidity pattern between male and female ($\chi 2 > 3.84$, $p > 0.05$). No death was recorded during this duration. Out of 141 cases, 5 patients were referral to higher center (3.47%) & 11 Patients were discharge against medical advice (DAMA) (7.64%). Congenital abnormalities & hyperbilirubinemia were common among <1 yr child (30.38%, n=24). respiratory morbidity was common in adults (32.56%, n=14). While above 55 age cardiac morbidity was common (40.91%, n=9).

Conclusion: The leading cause of admission was congenital abnormalities & hyperbilirubinemia in pediatric ward and respiratory or cardiac disease in medicine ward. The conditions which required referral to higher centre were surgery for leg, hernia, Tuberculosis and dialysis.

Key words: Hyperbilirubinemia; Cardiovascular disease; Respiratory disease; PICU admission; Morbidity; Status on discharge; Hospital stay

1. Introduction

The health policies of a country are a fundamental component in influencing the health status of a population, and health statistics are critical for evidence-based policy formation. The process of policy planning and resource allocation is influenced by health indicators and patterns. Birth rate, death rate, life expectancy at birth, morbidity/mortality patterns and so on, are all important indicators of population health. It is necessary to identify and quantify many illnesses that impact the population's health in order to compute indicators. The morbidity pattern depicts the severity of the disease as well as historical patterns that reveal demographic disparities in disease burden by age, gender, ethnicity, and other factors. It demonstrates the scope and type of the illness burden in the community, assisting in the setting of priorities. It's also required for disease prevention and control monitoring and assessment. The pattern of mortality and morbidity aids in

resource allocation and trend monitoring for intervention effects.In general, there is a paucity of information in developing nations about illness incidence, death rates, and trends, particularly in a densely populated country like India with its multicultural and multiethnic community." This is in stark contrast to the situation in wealthy countries, where such information abounds. However, the few reports available are hospital-based, and while they may not be sufficient to form a comprehensive national data set of disease patterns as recommended by the World Health Organization (WHO), they could certainly help in assessing disease patterns, mortality, and morbidity when tracked over time. The relevance of this research may be seen in the WHO's goals for healthcare delivery and India's attainment of the Millennium Development Goals. The data produced from these monitoring patterns is crucial for improving India's health services and, as a result, lowering morbidity and death rates among patients in poor nations. **[1]** The major objective of the present study was to assess the morbidity pattern in indoor patients in a tertiary care hospital in Ahmadabad. The term “audit” implies a professional commitment to improvement and involves a systematic approach highlighting opportunities for improvement and positive change in clinical practice. During labour or the first 24 hours following birth, over 46% of all maternal fatalities and 40% of newborn deaths occur. Prematurity (35%) is the leading cause of new-born death, followed by newborn infections (33%), birth asphyxia (20%), and congenital deformities (9%). **[2]**

Death during and after delivery, on the other hand, is often avoidable if trained birth attendants and emergency obstetric care are available. Early and exclusive breastfeeding, as well as vaccination against measles and other vaccine-preventable infections, improve survival rates dramatically in the post-newborn period. **[2]** In India, about 3.5 million newborns are born prematurely, 1.7 million have birth abnormalities, and one million new-borns are released from Special New-born Care Units each year (SNCUs). These babies are still at a significant risk of dying, stunting, and developmental delays. **[2]** India has made headway in reducing infant mortality, with its share of the global newborn mortality burden falling from one-third in 1990 to less than a quarter of all newborn fatalities now. In India, there are roughly one million fewer neonatal fatalities and 10,000 fewer maternal deaths each month in 2017 than in 2000. This is due to an increase in the number of women giving birth in hospitals. **[2]** Six out of ten women delivered in their homes without the assistance of a qualified birth attendant just over a decade ago, placing themselves and their newborns in danger. This percentage has already fallen by tenfold, with eight out of ten women giving birth in a health institution**. [2]**

However, the quality of service delivery has not kept up with the expansion in coverage. Low quality healthcare delivery across the country has resulted in early breastfeeding start among just 42% of women, high incidence of stillbirths (5 per 1000 births, Source: SRS 2017), and several fatalities due to suffocation in SNCUs. [2] The rise in coverage has also been inequitable, with 21% (NFHS 4) of women still giving birth at home, the majority of whom are tribal and from the poorest households, sometimes in difficult-to-reach places. The first 28 days of a new life born's are a vital window for preventing and managing maternal and new-born problems, which can be lethal otherwise. **[2]** Although India has made tremendous success in reducing child mortality, the focus now has to shift to targeting the most vulnerable, with a specific emphasis on girls. While the country's quick expansion of SNCUs has sped up the decrease of newborn mortality, it has also shown socio-cultural impediments to obtaining treatment, especially for new-born females**. [2]**

In many situations, notably in the states of Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh, girl new-borns are denied their entitlement to decent care. Despite the provision of free services, girls account for less than half (41%) of SNCU admissions. In India, approximately 849 SNCUs admitted 190,000 fewer new-born females in 2019. Despite the fact that new-born girls are physiologically stronger, they are socially vulnerable due to prevalent male child preference, as seen by female children's greater newborn and under-five mortality**. [2]**

In the globe, India is the only big country where more female newborns die than boy babies (U5MR). In terms of mortality in children under the age of five, there is a 3% difference between boys and girls. UNICEF's new-born health programming aims to minimise care inequalities, enhance health systems, and include resilience and risk-informed planning. Millions of excluded women and their newborns can be ssaved with a combination of substantial investment in the most vulnerable neighborhoods and committed leadership. The United Nations Children's Fund's focus on equitable newborn mortality reduction aligns with the Government of India's India New-born Action Plan, for which UNICEF is a significant partner. By 2030, the Action Plan intends to decrease avoidable new-born deaths and stillbirths to a "single digit" rate of neonatal mortality and stillbirth**. [2]**

Auditing admissions and their results becomes critical with the goal of adjusting processes as needed after full reflection, resulting in better patient outcomes. **[1]**

Objective:

1) Age & Sex specific morbidity pattern in tertiary care hospital.

2) Identify the reason for referral to higher hospital and the duration of stay

2. Methodology

A Cross Sectional record-based study was designed to collect record based data of indoor and outdoor patients. The study was conducted at a tertiary care hospital, the main hospital of a district in the state of Gujarat, India. A time period for study was July 2021 to September 2021. A team of well-trained medical staff, non-medical staff and experienced clinical technicians work round-the-clock to offer various services. Their professional services make them sought after in the district. A team of doctors on board, including specialists, are equipped with the knowledge and expertise for handling various types of medical cases. Records of 141 patients were studied. Hospital records of all admissions, transfers outside, discharges, and deaths were analyzed. Sample size was calculated with the help of institutional Statistician using the b Study Design: Cross Sectional

Study Design: Cross Sectional

Inclusion Criteria

• The patients who were admitted to the Hospital in the period of the study

• Only data of those patients were utilized whose records were complete

Exclusion Criteria

• Patient with incomplete diagnosis, Partial or missing records.

3. Data Analysis

Data from the records was collected. Specific emphasis was given on morbidity, age, gender, and duration of hospital stay as those were the main points to be analyzed. Data collected were compiled and entered in MS Excel spreadsheet and analyzed using appropriate statistical tools statistical package for scientific solutions (SPSS) version 20.0 spreadsheet. Being record based, this study was waived by the ethics committee. There is no conflict of interest nor the authors received any type of funding.

4. Results

A total of 141 patients were admitted in the wards during the study period. Among them 80 (55.55%) were females whereas 64 (44.44%) were males as shown in table 1.

***Table 1**: Gender wise distribution.*

	DEPARTMENT	Female NO (%)	Male	Total
	MEDICINE	44	22	66
	PAEDIATRIC	34	41	75
		78	63	141(100)

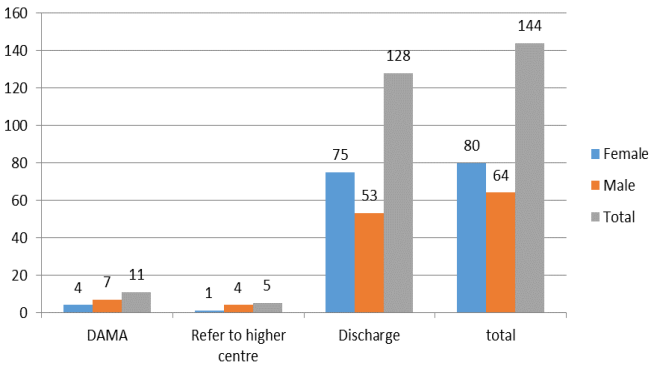

***Figure 1**: Outcome of admitted patient.*

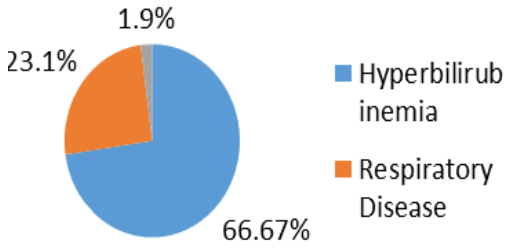

***Figure 2:** Pediatric Ward.*

Figure 3: - Medicine ward

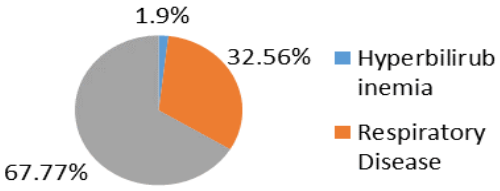

***Figure 3:** Medicine Ward.*

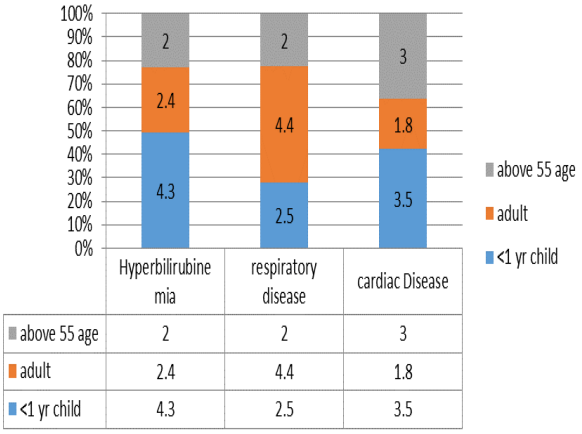

***Figure 4**: Age wise distribution of disease.*

***Table-2**: Co-morbidity relation with gender.*

	Female	Male	Total
Co Morbidity			
No	61	57	118
Co Morbid	16	7	23

***Table 3**: Age wise diagnosis.*

Age	Hyperbilirubinemia	Physiological Jaundice	Heart related	Respiratory	Other	Total
0-5	12	8	1	11	20	52
5-10	0	0	0	1	11	12
10-15	0	0	0	6	6	12
15-20	0	0	0	1	2	3
20-25	0	0	0	2	1	3
25-30	0	0	0	2	4	6
30-35	0	0	0	1	5	6
35-40	0	0	0	1	2	3
40-45	0	0	1	2	3	6
45-50	0	0	0	2	1	3
50-55	0	0	3	3	1	7
55-60	0	0	3	1	2	6
>60	0	1	9	6	6	22
Total	12	9	17	39	64	141

***Table 4**: age wise distribution of length of stay in the hospital.*

	48 hours	96 hours	144 hours	192 hours	1080
0-15	27	26	12	3	11
15-30	2	7	4	0	2
30-45	4	3	3	2	0
45-60	14	10	8	5	1

5. Discussion

There was no specific difference in morbidity pattern between male and female ($\chi 2 > 3.84$, $p > 0.05$). No death was recorded during study period. Out of 141 cases, 5 patients were referred to higher center (3.47%) & 11 Patients were discharge against medical advice (DAMA) (7.64%) shown in figure 1. congenital abnormalities & hyperbilirubinemia were commonest in <1 yr child (30.38%, n=24). respiratory morbidity was commonest in adult (32.56%, n=14) shown in figure 2. While above 55 age cardiac morbidity was commonest (40.91%, n=9) shown in figure 3 & 4. There were other morbidity also shown like gastritis, Diabetes mellitus, Generalized Lymphadenopathy, liver abscess, iron deficiency anemia, myopathy, sepsis, physiological Jaundice, Facial dysmorphism. But among all of this hyperbilirubinemia was

most common in pediatric patient and heart related problem was most common in elder patient shown in table 3. Out of 141 patients, total 23 patients have co morbid condition. In those 16 females and 7 males shown in table 2. Co morbid

conditions were like hypertension, hyperthyroidism, diabetes mellitus type 2, hypothyroidism, fatty liver. The chi square value is 3.945. The p value is 0.13911. The result is not significant at p >0.05. Duration of stay was more in 0-15 age groups than elderly patients these suggests higher chances of infection in neonates, adults & adolescents shown in table 4.During the study period female were more in number (65%) than male (35%) admitted in pediatric and medicine ward for treatment Shown in table 1. This finding is opposite to the other studies conducted in the Medical College and Zonal Hospital of Mandya. **[3]** Similarly, children of less than five years are more in number (74%) than the age group more than five years among the admitted ones in our study. Hyperbilirubinemia was the most commonly involved with low birth weight baby the major cause of morbidity of children in our scenario. Enteric fever and respiratory tract infection with pneumonia involving the respiratory system were the subsequent causes for the admission. These findings are in consistent with the similar studies conducted in other set up including the one conducted in Nepal and Bangladesh **[4] [5].**

The national data from recent Annual Health Report published by Department of Health Services also shows the acute respiratory infection being the most common cause of childhood diseases followed by acute diarrhea. The socioeconomic status of the people, lack of education, sanitation and poor access to health care facilities are supposed to be the causes for these infectious diseases being the major reason for hospital admission. A study by Rice et al published in WHO Bulletin suggests malnutrition as the important underlying cause for the mortality associated with infectious disease in children in developing countries **[6]**

Mortality rate observed in our study is zero is lower than that of the mortality rates observed in study conducted by hospital in Mandya **[3]**. The most common causes of mortality were RDS (43.3%), birth asphyxia (37.11%), and sepsis (8.25%).Similar pattern of outcome has been reported by study conducted by Rashid et al. [7] In contrast the study report published by ICMR reports sepsis (32.8%) as the major cause for neonatal mortality followed by birth asphyxia (22.3%) and prematurity (16.8%) **[8].** In the study done at JIPMER, sepsis was the cause for death in 52.3% of neonates followed by birth asphyxia and injuries (29.23%). Majority of deaths in our study was attributable to RDS and birth asphyxia; this may probably be due to poor antenatal care, malnourished pregnant women, less availability of health facility, delivery by untrained professional and delay in referral from peripheral hospitals. Birth weight <1500 g were associated with high number of mortality in preterm neonates.

This finding could be the basis for policy makers to address the current challenges in the management of childhood illness **[8].** In our study respiratory disease was most common in adult followed by jaundice, viral fever and gastritis. Where cardiac disease was most common in elder followed by diabetes mellitus, myopathy and gastritis. Some similar finding was founded in research conducted in Vadodara **[9].** No death was recorded during study period. This shows the opposite finding than study conducted by Dr. Abdul Rehman **[7] [10].** Out of 141 cases, 5 patients were referral to higher center (3.47%) & 11 Patients were discharge against medical advice (DAMA) (7.64%). The patients which required referral to higher center for surgery like surgery of leg, for dialysis, for hernia. The patients who discharge against medical advice were due to lake of trust in hospital or due to poor economic status.

6. Conclusion

According to this study Hyperbilirubinemia, RDS and birth asphyxia are leading causes of morbidities in newborn babies. Respiratory disease and jaundice were leading cause of morbidities in adult. Cardiac disease, asthma and diabetes mellitus were leading cause of morbidities in elder. In spite of many advances in neonatal care and tertiary care above factors still continue to be the leading causes of morbidity. The majority of morbidities and subsequently the mortalities can be prevented by improving antenatal care, maternal health, timely intervention, referring at appropriate time to tertiary care centers for high risk cases, preventing preterm deliveries and care of neonates at centers with facility. This study has some limitations, as this was a hospital based retrospective study, the cause of death was determined using the data available in case. A well equipped intensive care unit with modern and innovative facilities along with the availability of full-time trained pediatric intensivists made a significant impact on the outcome of critically ill patient.

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