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Research Article

**ANALYSIS OF THE PATIENTS TREATMENT OUTCOME
ADMITTED IN THE PROVINCIAL TERTIARY CARE HOSPITAL
WITH RESPECT TO ANTIBIOTICS OMISSION ERRORS IN
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Abstract:

Objective: The investigation of patient's treatment outcome, death rate and errors of omission in antibiotics agents utilized in pediatric inpatients.

Material and Methods: This was a retrospective analysis of admissions. The examination utilized information collected tentatively inside a 50-bed pediatric ward of Bolan Medical Complex Hospital, Quetta, Pakistan. The information was collected by the examination of patient admission /discharge register by ward Pharmacist from October 2016 to March 2017. The total 735 patient were conceded trough out the investigation span. Information was recorded in a data collection form and analyzed. The recurrence and rate were investigated by utilizing SPSS 22.

Result: The total 735 patients were conceded all through the investigation, out of which 448 (60.95 %) were male and 287 (39.05%) were female and total medication administrations were 20095. Discharged/ improved were 531 (72.24%), Expired were 35 (4.74%), LAMA (left against medicinal advice) were 76 (10.34%), intravenous medication was stopped in 4 patients which was (0.54%), discharged on request 16 (2.17%), referred to other hospital 3 (0.40%) and still present in ward were 66 (8.79%). The omission errors in the antibiotic agents as follows; in ceftriaxone sodium was 4062 (20.21%), ampicillin+clavulanic acid 3179 (15.81%), streptomycin 29 (14.43%), vancomycin 1277 (6.35%) and cefepime 222 (1.10).

Conclusion: The patient's treatment outcome in pediatric ward of tertiary care was higher. One of the real reasons for mortality and morbidity might be omission errors.

Keywords: Patients, treatment outcome, omission errors, antibiotics, Pharmacist, Quetta, Pakistan.

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INTRODUCTION:

A patient is admitted to a healthcare facility where all relevant evidence is noted. A physician and additional facility resources are allocated to the patient. Subsequent treatment, the patient is discharged. This pattern designates only some of the features of patient treatment, which comprise the making and keep of the patient record and the task of the resources for usage by the patient. This pattern defines an over-all non-emergency treatment condition and does not reflect the details of patient analysis and treatment [1]. During admission, the patient record is shaped or information is reorganized from earlier appointment. Inpatients are allocated a place, nurse team, and referring doctors [1]. Even with the restorative work induce, there are varied on screen characters mandatory in handling this data. The association and get the chance to switch of the private uplifting information of everyone is mind confusing and separated [2]. To offer standards to the affirmation of these records various countries, including the US, are approving laws that deal with the use of electronic patient records. The British Medical Association in 1996 put strong controls on UK diligent records. In the US, the starting late asserted Health Insurance Portability and Accountability Act (HIPAA) tries to do similarly [3]. France, Germany and Iceland are diverse countries that have realized this kind of control. An illustration is a fair way to deal with enhance the methods anticipated that would execute systems that consent to a couple of areas of this control. Moreover, this case could be used as a starting stage to make security models for restorative information as in [4].

Seriousness of ailment is an essential clinical develop utilized by doctors to arrange their patients. The evaluation of sickness seriousness considers both illness and patient traits and degree and force of appearances of the malady are essential contemplation [5]. What's more, the doctor considers the patient's general condition, weight of co-morbid sickness and capacity to withstand the physiologic, psychological and social bothers of an intense ailment [5]. The greater part of the healing facilities in Pakistan take after the OPD (Out Patient Department) frameworks, where patients visit doctor's facility OPD, s for standard checkup or intense ailments. These OPD, s keeps running by the Physician's and PG, s (Post Graduate Medical Students). If the state of patient discovered basic then patient will be admitted to the ward for encourage examination and malady administration.

This is a first study in which understanding treatment result saw from admission to the released of the patient as for the omission errors.

MATERIAL AND METHODS:

Study Design

This was a retrospective analysis of admissions / discharge register.

Setting and Study Population

The examination utilized information collected tentatively inside a 50-bed pediatric ward of Bolan Medical Complex Hospital, Quetta, Pakistan. All patients' admission /discharged register during the examination time were watched.

Study Instruments

The parameters of data collection form were as follows; (1). Demographic Characteristics; drug administration comparison in different months, shift wise drug administration comparison, nurse wise drug administration comparison, medication route of administration comparison, age group and drug administration comparison. (2). Inpatient Admission Analysis; admission, discharged/improved, expired, LAMA (Left Against Medical Advice), intravenous medications stopped, discharged on request, referred to other hospital, patient present in ward. (3). Comparison of Omission Errors in Intravenous Antibiotics with Drug Administration; the admitted patients were treated with different kind of intravenous antibiotics as, ceftriaxone sodium, vancomycin, ampicillin+clavulanic acid, cefotaxime, tobramycin, cefepime, gentamycin, ciprofloxacin, amikacin, ceftazidime, streptomycin and levofloxacin.

Study Procedure

The information was collected by the investigation of patient admission /discharge register by ward Pharmacist from October 2016 to March 2017. The total numbers of 735 patients were conceded throughout the investigation span. Information was recorded in data collection form and analyzed. The reappearance and rate was investigated and One-Sample Kolmogorov-Smirnov test performed by utilizing SPSS22.

RESULT:

The total 735 patients were considered, out of which 448 (60.95 %) were male and 287 (39.05%) were female. The total medication administration was 20095 out of which in October 2016, the medication administration was 3612 (18.0%), in November 2016 (22.7%) drug administration was 4567, in December

2016 the medication administration was 1780 (8.9%), in January 2017, medication administration was 4596 (22.9%), in February 2017 drug administration were 3399 (16.9%) and in the month of March 2017 drug administration were 2141 (10.7%).

The total medication administrations in morning shift were 9312 (46.3%), in night shift were 2980 (14.8%) and in night shift were 7803 (38.8%). The medication administrations by nurse N1 were 3176 (15.8%), N2 4021 (20.0%), N3 1403 (7.0%), N4 2976 (14.8%), N5 2976 (14.8%) and N6 were 5543 (27.6%). The total intravenous (I/V) route drug administrations were 19571 (97.4%), intramuscular (I/M) route of medication administrations were 512 (2.5%) and subcutaneous (S/C) route of medication administrations were 12 (0.1%). The total drug administrations in the different age group were as follows; in the age group between 1- 11 months was 6060 (30.2%), 1-3 years 6256 (31.1%), 3-5 years 1903 (9.5%), 5-7 years 824 (4.1%), 7-9 years 2285 (11.4%) , 9-11 years 1559 (7.8%), 11-13 years 937

(4.7), 13-15 years 243 (1.2%) , 15-17 years 2 (0.0%), and in the age group N/A (Age was not specified) 26 (0.1%) as appeared in table-1. Inpatient admission analysis; the total 735 patients were admitted throughout the study out of which discharged / improved were 531 (72.24%), expired were 35 (4.74%), LAMA (left against medical advice) were 76 (10.34%), intravenous medications were stopped in 4 patients which was (0.54%), discharged on request 16 (2.17%), referred to other hospitals 3 (0.40%) and patients present in ward were 66 (8.79%) as shown in table - 2 and figure-1.

The omission errors in the antibiotics as takes after; ceftriaxone sodium was 4062 (20.21%), vancomycin 1277 (6.35%), ampicilline+clavulanic corrosive 3179 (15.81%), cefotaxime 93 (0.46%), tobramycin 458 (2.79%), cefepime 222 (1.10), gentamycin 99 (0.44%), ciprofloxacin 8 (0.03%), amikacin 90 (0.49%), ceftazidime 124 (0.61%), streptomycin 29 (14.43%) and levofloxacin 40 (0.19%) as appeared in table-3.

Table.1: Demographic Characteristics, Months, Shift Wise, Nurse Wise, Route of Administration and Age Group Comparison.

| Demographic Characteristics (N=735) | | |
|--|------------------|----------------|
| Description | Frequency | Percent |
| Gender | | |
| Male | 448 | 60.95 |
| Female | 287 | 39.05 |
| Drug Administration Comparison in Different Months (N= 20095) | | |
| Months | | |
| October 2016 | 3612 | 18.0 |
| November 2016 | 4567 | 22.7 |
| December 2016 | 1780 | 8.9 |
| January 2017 | 4596 | 22.9 |
| February 2017 | 3399 | 16.9 |
| March 2017 | 2141 | 10.7 |
| Shift Wise Drug Administration Comparison (N= 20095) | | |
| Shifts | | |
| Morning | 9312 | 46.3 |
| Evening | 2980 | 14.8 |
| Night | 7803 | 38.8 |
| Nurse Wise Drug Administration Comparison (N= 20095) | | |
| Nurse | | |
| N1 | 3176 | 15.8 |
| N2 | 4021 | 20.0 |
| N3 | 1403 | 7.0 |
| N4 | 2976 | 14.8 |
| N5 | 2976 | 14.8 |
| N6 | 5543 | 27.6 |
| Medication Route of Administration Comparison (N= 20095) | | |
| Route | | |
| I/V | 19571 | 97.4 |
| I/M | 512 | 2.5 |
| S/C | 12 | 0.1 |
| Age Group and Drug Administration Comparison (N= 20095) | | |
| Age Group | | |
| 1Month - 11Months | 6060 | 30.2 |
| 1Year - 3Years | 6256 | 31.1 |
| 3Years - 5Years | 1903 | 9.5 |
| 5Years - 7Years | 824 | 4.1 |
| 7Years - 9Years | 2285 | 11.4 |
| 9Years - 11Years | 1559 | 7.8 |
| 11Years - 13Years | 937 | 4.7 |
| 13Years - 15Years | 243 | 1.2 |
| 15Years - 17Years | 2 | 0.0 |
| N/A (Age was not mentioned) | 26 | 0.1 |

Table. 2: Inpatient Admission Analysis

| Inpatient Admission Analysis (N=735) | | |
|--------------------------------------|-----------|---------|
| Description | Frequency | Percent |
| Patient Status | | |
| Admission | 735 | 100.00 |
| Discharged/Improved | 531 | 72.24 |
| Expired | 35 | 4.76 |
| LAMA (Left Against Medical Advice) | 76 | 10.34 |
| Intravenous Medications Stopped | 4 | 0.54 |
| Discharged on Request | 16 | 2.17 |
| Referred to Other Hospital | 3 | 0.40 |
| Patient Present in Ward | 66 | 8.79 |

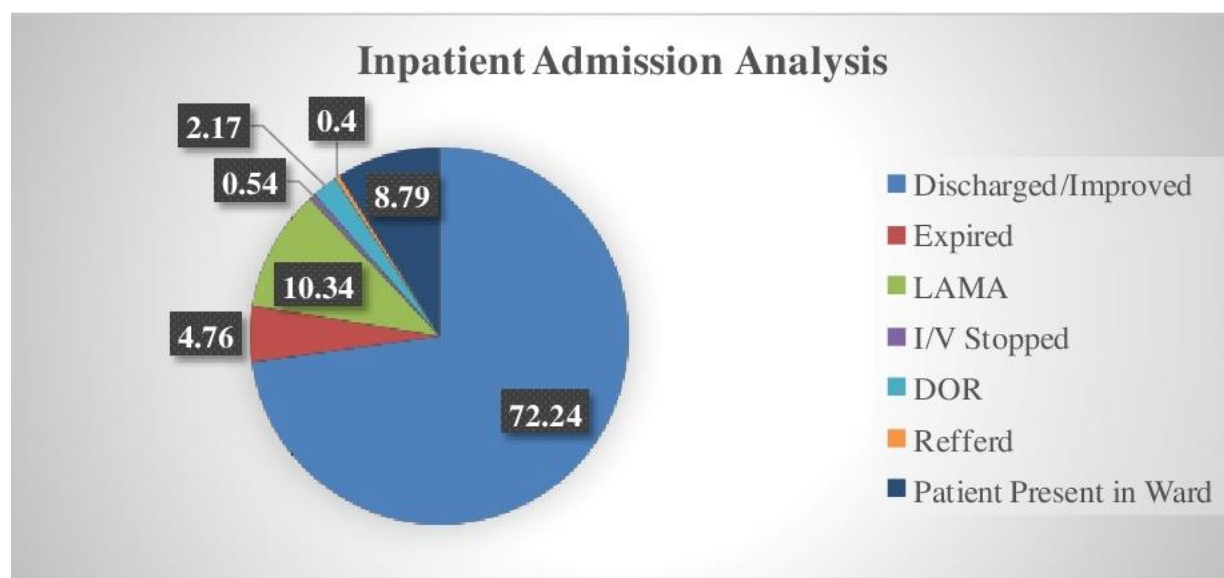


Fig.1: Inpatient Admission Analysis

Table- 3: Comparison of Omission Errors in Intravenous Antibiotics with Drug Administration

| Comparison of Omission Errors in Intravenous Antibiotics with Drug Administration (N=20095) | | |
|---|-----------------|---------|
| Description | Omission Errors | Percent |
| Antibiotics | | |
| Ceftriaxone Sodium | 4062 | 20.21 |
| Vancomycin | 1277 | 6.35 |
| Ampicilline+clavulanic Acid | 3179 | 15.81 |
| Cefotaxime | 93 | 0.46 |
| Tobramycin | 458 | 2.79 |
| Cefepime | 222 | 1.10 |
| Gentamycin | 8 | 0.03 |
| Ciprofloxacin | 90 | 0.44 |
| Amikacin | 99 | 0.49 |
| Ceftazidime | 124 | 0.61 |
| Streptomycin | 29 | 14.43 |
| Levofloxacin | 40 | 0.19 |

Table- 4: One-Sample Kolmogorov-Smirnov Test

| Description | Month | Shift | Nurse | Age | Age Group | Weight | Gender | Drug Name | Route | Frequency | Time | OE | Status | |
|----------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------|
| N | 20095 | 20095 | 20095 | 20095 | 20095 | 38 | 735 | 20095 | 20095 | 83 | 20095 | 20095 | 1439 | |
| Normal Parameters ^{a,b} | Mean | 3.91 | 1.92 | 3.76 | 15.07 | 2.84 | 10.38 | 1.39 | 6.61 | 1.03 | .15 | 2.65 | 1.41 | 1.95 |
| | Std. Deviation | 2.085 | .920 | 1.867 | 9.189 | 1.950 | 5.212 | .488 | 10.937 | .165 | .069 | .887 | .492 | 1.596 |
| Most Extreme Differences | Absolute | .146 | .306 | .185 | .109 | .280 | .352 | .398 | .359 | .538 | .331 | .268 | .386 | .348 |
| | Positive | .146 | .306 | .185 | .109 | .280 | .352 | .398 | .359 | .538 | .331 | .268 | .386 | .348 |
| | Negative | -.110 | -.267 | -.171 | -.063 | -.172 | -.325 | -.285 | -.304 | -.436 | -.257 | -.201 | -.297 | -.276 |
| Test Statistic | .146 | .306 | .185 | .109 | .280 | .352 | .398 | .359 | .538 | .331 | .268 | .386 | .348 | |
| Asymp. Sig. (2-tailed) | .000 ^c | .000 ^c | .000 ^c | .000 ^c | .000 ^c | .000 ^c | .000 ^c | .000 ^c | .000 ^c | .000 ^c | .000 ^c | .000 ^c | .000 ^c | |

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

DISCUSSION:

There fundamental discoveries from this examination was that a huge number of men than ladies were admitted to pediatric ward. Most of the drug were administered in January 2017. The death rate was less (4.74%) which a decent sign for quiet wellbeing and the treatment achievement rate was high (72.24%). The utmost omission mistakes were found in Ceftriaxone sodium i.e. (20.21%).

The great quantity of male over female confirmations speaks to an inversion of the sexual orientation contrasts in psychiatric affirmation [6-8]. Consequence of existence study supported the result of past investigation.

To date there has been compelled uncovering of HES data for psychiatric affirmations. Smith et al (1996) used HES data for 1992 to develop a record of relative necessity for psychiatric administrations and uncovered an overall (all ages) in-understanding affirmation rate of 4.2 for each 1000 in England. In their examination, there was a wealth of female certifications, however this was a result of higher affirmation rates among those developed 45–79 years [9]. In any case, in the present understudy a bigger number of guys were conceded than females so contradict the consequence of past investigation.

PICU (Pediatric Intensive Care Unit) results shifted essentially by the wellspring of confirmation. Three hundred seventy-six (4.2%) youngsters kicked the bucket in examination with the ED (Emergency Department) affirmations (3.7%) [10]. However, in the present examination, the death rate was (4.76%) which was (0.56%) higher than PICU and if contrast and the ED (Emergency Department) the death rate of present investigation was (1.06%) higher.

The ward confirmations, non-PICU exchange affirmations, and between PICU affirmations had higher unadjusted death rates of 9.8%, 6.7%, and

12.7%, individually [10]. but in the present examination the correlation of death rate with the ward affirmations was (5.04%) less, in non-PICU exchange affirmations the death rate was (1.94%) less and in between PICU affirmations the death rate was (7.94%) lesser.

Additionally, enhanced results have been related with early distinguishing proof of fundamentally sick grown-up patients on the wards before physiologic crumbling and requirement for emergent revival and ICU affirmation [11-13]. The consequence of present investigation upheld the aftereffect of as of late performed examinations.

CONCLUSIONS:

The patient's treatment outcome of provincial tertiary care pediatric ward was fundamentally higher. This is great sign for the patient wellbeing. Methodologies went for lessening of mortality at the pediatric ward of tertiary care hospital should refers patients from the pediatric wards to NICUs and from NICUs to different therapeutic centers. A great percentage of the omission errors were found in the ceftriaxone sodium intravenous injection that was routinely used two times/day which is recognizable for authorities. One of the real reason for mortality and morbidity might be omission errors. Additionally, inquire about is expected to distinguish indicators of mortality and morbidity in patients. To overcome the omission mistakes more Pharmacist intervention studies required in such manner.

Conflict of Interest

Authors affirmed that they have no conflict of interest.

Source of Funding

None.

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