Patterns of Documenting Patients' Medical Records and Antibiotic Use for Cases with Acute Respiratory Infection in Basrah hospitals

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Abstract

The present study was carried out to evaluate the process of documenting patients' medical records in addition to the pattern of antibiotic use in Basrah general hospitals. A retrospective type of study was conducted for antibiotic prescription in 562 inpatients' medical records of those who were admitted to paediatric wards in five hospitals in Basrah governorate because of acute respiratory infections.

The study shows that 86% of the patients stayed for less than 5 days at the hospital with 13% of them stayed between 5-10 days. All of the 562 patients' records were reviewed for documentation of the investigations taken during hospitalization, use of antibiotics and follow up while in hospital.

Around two thirds (65.5%) of the records were found to have no documentation for any investigation during hospitalization. In addition, antibiotic therapy was found to be used in 83.3% of the cases. By comparing the WHO indications for using antibiotic therapy in acute respiratory infections cases, it was found that antibiotics were prescribed without justifiable indications in 44.7% of patients.

The study recommended re-enforcing the adoption of updated drugs use protocols and guidelines especially on the use of antibiotics in hospitals and specifically in inpatient pediatric age groups.
Furthermore, assigning clinical pharmacists in the clinical inpatients setting is one of the study recommendations in order to monitor the clinical use of these medications.
Key words: Acute respiratory infection, antibiotics, inpatients, Basrah

Introduction

Antibiotics are considered as powerful and effective drugs in the battle against diseases and have been commonly used for decades globally for treatment of a wide variety of bacterial caused infections [1, 2]. Meanwhile, only a small percentage of patients (less than 20% of the cases) with acute respiratory infections (ARI), which is a common illness that accounts for the major part of the outpatient visits, necessitate antibiotic drug therapy [3].
Studies have shown that there is an incorrect and inappropriate use of antibiotics, especially for these common diseases, which resulted in more spread of antibiotic resistance. In a study done in 2003 by in Brazil, it was shown that 28% of the antibiotic

prescriptions for children were inappropriate [4].

Furthermore, the matters of antibiotic selection and proper use are of serious significance to the global communities [5, 6]. Practical use of antibiotics will restrict health care costs and potential adverse effects to the individual taking those drugs [5].

Globally, it is estimated that more than 50% of all drugs are prescribed inappropriately (with a special concern on antibiotics) [7]. In spite of having this problem globally, there have been very few studies in developing countries tackling the misuse of antibiotics[8].

In addition, it has been estimated that more than 50% of inpatients receive antibiotics without a solid indication [9]. On the other hand, using more than one antibiotic or over prescription might end up with more drug resistance with more opportunity of super infections. The recurrent use of antibiotics is well-thought-out to be one of the main causes for the high prevalence of hospital-based antimicrobial resistance [9,10]. Consequently, patients with infections caused by drug-resistant bacteria are generally at increased risk of worse clinical outcomes and death, and consume more health-care resources than patients infected with the same bacteria that are not resistant.[11]

On the other hand, an incomplete documentation in patient's clinical records demonstrates that care was incomplete and reflects poor clinical care. It is clear that incomplete documentation is used to support allegations of negligence and fraud. [12]. Past experiences proved that incomplete documentation in patients' clinical records also results in loosing revenues and resources. [13]

The most common incompleteness include missing signature, date for clinical documentation that supports patient's symptoms, no evidentiary radiographs performed to support medical necessity of procedure, insufficient/detailed medication administration recording charts, or therapy discharge summary in addition to incomplete progress notes. [14]. This study was carried out in Basrah with specific objectives: 1**.**To assess the pattern of antibiotic use among inpatients cases in Basrah hospitals. 2. To evaluate the documentation/recording of the patients' information in regard to completeness of the present illness, patient's follow up notes and investigations taken during the period of hospitalization for the above cases.

Methodology

Study Area

The study involved 5 hospitals in Basrah governorate including:

1. Al Sadr Teaching Hospital
2. Al Basrah General Hospital
3. Ibn Ghazwan Hospital for Maternity and Pediatrics
4. Al Zubair General Hospital
5. Al Mudaina General Hospital

Study Design: A hospital record-based retrospective cross sectional study.

Study Period: The study was conducted during two-month period (February-March 2016). A careful review was made of records of

inpatient who were hospitalized during January 2016 in sampled hospitals.

Source of Data: Patients' medical records and files containing laboratory test results (including X ray and weight measurements), treatment prescription orders and review of present illness and patient's follow up notes.

Sampling Technique: All the medical records of inpatients during January 2016 were included in the sample. WHO standards were used to evaluate the appropriateness and indications of prescribing antibiotics to the patients with ARI. A total of 562 patients' record sheets were included.

Data Analysis Procedures: The collected data were entered and analyzed using Microsoft office Excel sheets 2010 version. Data were collected by specially trained team. They were analyzed by the researcher.

Variables included: Age as it is at the time of admission, sex, length of stay in hospital, documented Lab. investigations, X ray and weight measurement in patient's records, documented Diagnosis/ cause of admission, documented present illness and patient's follow up (in regards to completeness level) and documented Antibiotic use and pattern.

Results :

Age and sex: The demographic characteristics of the study population registered in the inpatient records are shown in Figures 1 and 2. The majority of inpatients diagnosed with ARI were under 5 years of age (88.1%). An excess males was noticed (56.7%).

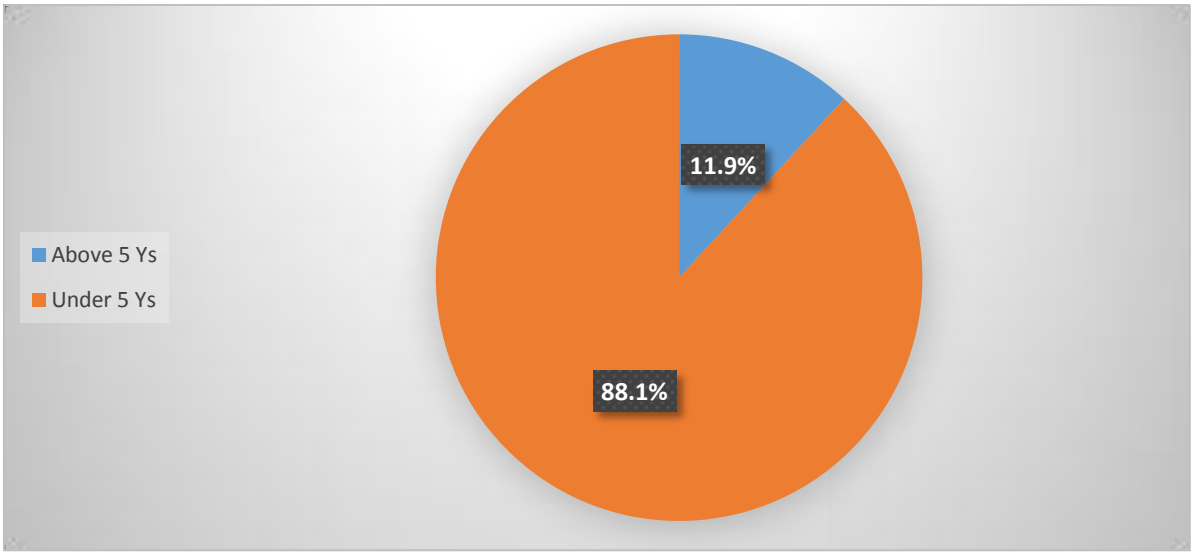

Figure 1. Distribution of the studied population according to age (%)

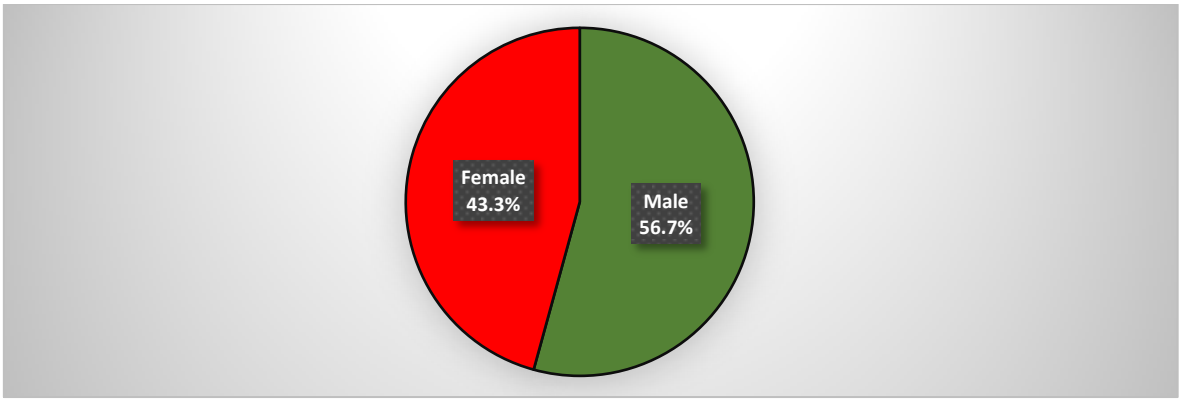

Figure 2. Distribution of the studied population according to sex (%)

Stay in hospital: Figure 3 shows that 86% of the patients stayed for less than 5 days at the hospital with 13% of the patients stayed between 5-10 days. Only 1% of them stayed for more than 10 days.

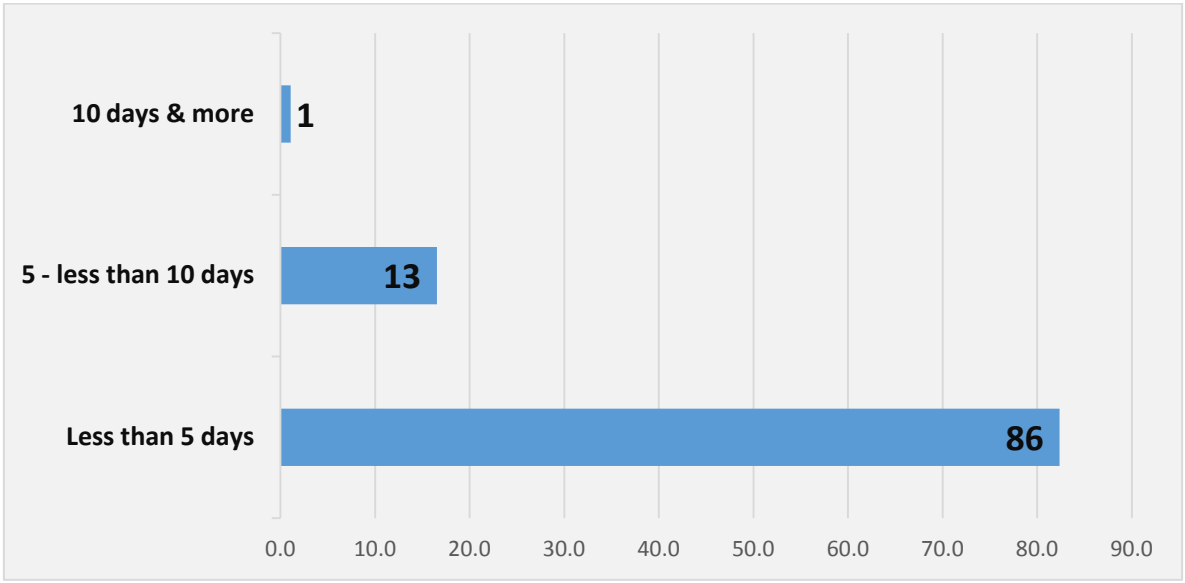

Figure 3: Distribution of the studied population according to duration of admission (%)

Documentation: All of the 562 patients' records were reviewed for documentation of the investigations taken during hospitalization, 65.5% of the records were found to have no documentation for any investigation during hospitalization. In addition, almost all of the patient records (98%) failed to provide any information on the X-ray taken during the time of hospitalization. Similarly, 64.6% of the records did not contain any weight measurement during the whole period of hospitalization (Table1).

Table 1. Distribution of the study sample according to Investigations taken during admission

Documentation	Lab. investigation		X ray		Weight measurement	
	No.	%	No.	%	No.	%
Yes	194	34.5	11	2.0	199	35.4
No	368	65.5	551	98.0	363	64.6
Total	562	100.0	562	100.0	562	100.0

Present illness and follow up: all patients' records were reviewed for completeness of the information recorded in the present illness and the follow up of their disease history. 409 of the patient's records were found to have either no documented present history at all , poor documented history or incomplete one (1.6%, 30.1% and 41.1% respectively). Only 27.2% of the records were found to include a well documented present illness.

Similarly, for the documentation of the follow up of the disease progress during the period of hospitalization, the study found that 403 of the admitted patients either have no documented follow up notes at all, poor documented follow up or incomplete one (2%, 16% and 53.7% respectively) Only 28.3% of the records were found to be including a good documented follow up notes (Table 2, Figure 4).

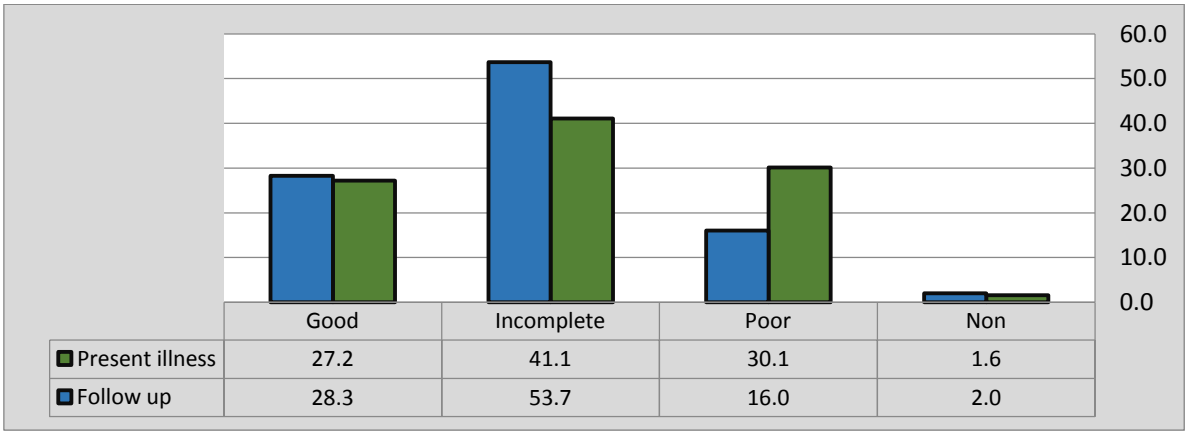

Figure 4: Distribution of the studied population according to history & follow up documentation (%)

Type of disease and antibiotic treatment: The majority (86.5%) of the admitted patients were pure ARI cases, 3.4% of them as mixed with Diarrhea and 11.7% admitted for other causes (Figure 5). Antibiotic therapy was used in 468 ARI patients (83.3%) and by comparing the WHO indications for using antibiotic therapy in ARI cases, it was found that in 209 (44.7%) the use was irrational. (Figures 6 and 7). In addition, 64.7% of ARI cases

were treated by single antibiotic, which is one of Ampiclox, Garamycine, Erythromycin, Cefotrixone, Flagyl or Amikacin). While 32.9% of the cases were treated by two antibiotics and 2.4% were treated with three antibiotics.

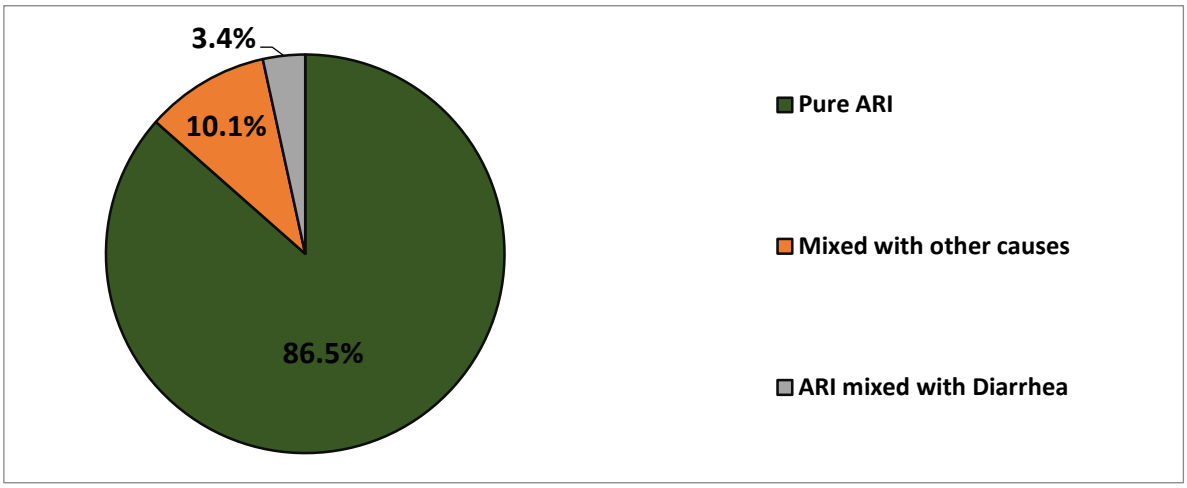

Figure 5: Distribution of the study sample according to Diagnosis (%)

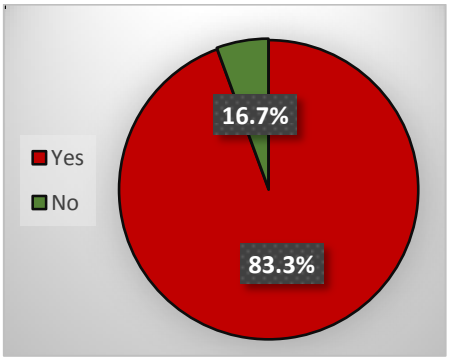

Figure 6: Use of Antibiotics in ARI (%)

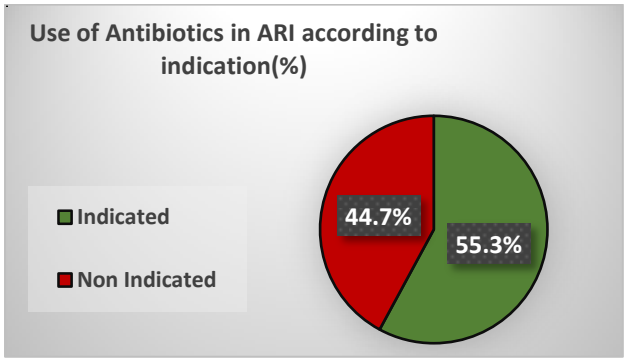

Figure 7: Use of Antibiotics in ARI according to indication (%)

Rank of antibiotics used: The most commonly used antibiotic for treating ARI cases was Ampiclox which was used in 222 patients (47.4%). The second most commonly used antibiotic was Ceftriaxoneand then Cloforan. The less commonly used antibiotics for treating ARI cases were found to be Amikacin (Tables 2).

Table 2. Pattern of using a single antibiotic in treating ARI cases:

Antibiotic	No.	%
Apmiclox	222	47.4
Cloforan	11	2.4
Ceftriaxone	59	12.6
Flagyl	11	2.4
Amikacin	0	0.0
Total	**303**	**64.7(n=468)**

Discussion

One of the main results of this study is the inappropriate use and prescriptions of antibiotics. In spite of the global interest for applying the rules and protocols of prescribing antibiotics, still their inappropriate use is common, especially in developing countries. [15, 16]

Studies revealed that irrational use of antibiotics leads to many consequences including unnecessary high cost, drug interactions, increased hospital stay and bacterial resistance. [17]

In the present study, we found that antibiotic therapy was inappropriately used in high proportion of cases. The study results were in line with an international perspective on the rational use and prescriptions of antibiosis in hospitals [18]. A close result was also found in a study done in Brazil in 2004 which found that the rational antibiotic use was only 45.7%. [19] In another study done in Indonesia, only 21% of prescriptions were measured to be clearly appropriate [20]

A prospective study done in Nigeria for children with ARI (both hospital and community based study), showed that 7.2% of the children were treated with Ampiclox.[21] A much higher percentage for using Ampiclox was found by the current study as it was found to be the common treatment for 47.7% of the patients with ARI.

In another study done in Pakistan to identify the treatment practices among ARI patients, 23.8% of the under-five year's children were found to be treated by Ampiclox. [22] Thus, the improper use of antibiotics seems a common practice and is worthy of reconsideration. Actually more than two decades ago, Habib and Ebrahim reported similar results of improper use of antibiotics for ARI cases in primary health centres in Basrah.[23]

On the other hand, poor documentation in patient's medical records can obstruct proper care and it usually indicates carelessness of the physician's practice in the follow up of the patient thoroughly.

In 2012 while studying the recording / reporting system of maternal deaths in Iraq by USAID in hospitals of Baghdad, Ninawa, Najaf, Anbar, Erbil and Basrah, it was found that the majority of the missed maternal

deaths in the study were directly related to incomplete or absent recording of the final diagnosis. [24] A birth cohort study done in Portugal for 8,127 women during 2005-2006, found that the proportion of missing data (especially on past medical and family history of chronic diseases) was very high and some data could never be recovered from medical records. [25]

In our current study, it was found that only 27.2% of the patients' records were reviewed for completeness of the information recorded in the present illness and the follow up of their disease history.

In conclusion, this study gives an overview of the pattern of antibiotic use in the study area for those children admitted to hospitals, and on the documentation process during hospitalization. High percentage of antibiotics use and prescription especially for non-indicated cases with high tendency to over-prescription and unjustified use of antibiotics. Therefore, the adoption of updates, drugs using protocols and guidelines especially on the use of antibiotics in hospitals (and specifically in admission wards and pediatric age groups) should be re-enforced and monitored continuously. In addition, assigning clinical pharmacists in the study area is very important in order to monitor the clinical use of these medications. Finally, several limitations of this study need to be included for future studies. First, the study analyzed only the documented use of antibiotics in the medical records of inpatients. The level of antibiotic use could not be measured due to the absence of accurate medication charts and the poor quality of medication record-keeping in the hospitals. Also, we were unable investigate the relationship between the adequacy or inadequacy of treatments and clinical outcomes. A more in depth study is needed for measuring the clinical outcomes for over using antibiotics in diarrheal cases.

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نمط التوثيق الطبي واستخدام المضادات الحيوية لمرضى التهاب الرئوي الحاد في مستشفيات البصرة

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الخلاصة:

أجريت هذه الدراسة لتقييم عملية توثيق السجلات الطبية للمرضى بالإضافة إلى نمط استخدام المضادات الحيوية في المستشفيات العامة في البصرة. وقد تم ذلك بأثر رجعي لدراسة وصفات المضادات الحيوية في 562 سجل طبي للمرضى الداخليين من الذين تم إدخالهم إلى أجنحة الأطفال في خمسة مستشفيات في محافظة البصرة بسبب التهابات الجهاز التنفسي الحادة.

بينت الدراسة أن 86٪ من المرضى كانت مدة بقائهم في المستشفى أقل من 5 أيام، و 13٪ منهم بقوا بين 5-10 أيام. وتم استعراض جميع سجلات المرضى (البالغ عددها 562 سجلا) لتوثيق الاجراءات التي أجريت خلال فترة العلاج بالمستشفى، واستخدام المضادات الحيوية والمتابعة أثناء رقودهم في المستشفى. ووجد أن حوالي ثلثي السجلات (65.5) لا تحتوي على أي توثيق للتحاليل المختبرية المأخوذة أثناء الرقود. بالإضافة إلى ذلك، وجدت الدراسة أن العلاج بالمضادات الحيوية يستخدم في 83.3٪ من الحالات. ومن خلال مقارنة مؤشرات منظمة الصحة العالمية لاستخدام العلاج بالمضادات الحيوية في حالات التهابات الجهاز التنفسي الحادة، وجد أن المضادات الحيوية توصف بدون دواعي استخدام مبررة في 44.7٪ من المرضى.

أوصت الدراسة بإعادة عتماد بروتوكولات ومبادئ توجيهية محدثة لاستخدام العقاقير وخاصة على استخدام المضادات الحيوية في المستشفيات وتحديدا في الفئات العمرية من الأطفال. وعلاوة على ذلك، تحديد الصيادلة السريرية لمتابعة المرضى الراقدين سريريا هي واحدة من توصيات الدراسة من أجل مراقبة الاستخدام السريري لهذه الأدوية.

الكلمات الدالة: عدوى الجهاز التنفسي الحادة، المضادات الحيوية، المرضى الداخليين، البصرة