

## CORRELATION BETWEEN THE INITIAL DIAGNOSIS IN PEDIATRIC MEDICAL EMERGENCIES DEPARTMENT AND THE FINAL DIAGNOSIS CONFIRMED AT THE LEVEL OF PEDIATRIC HOSPITAL DEPARTMENT

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### **Abstract:-**

**Introduction:** *Medical practice in the emergencies is particularly prone to diagnostic errors resulting not only in a potential delay risk of an effective treatment in therapeutic urgent cases, but also in the risk of subscribing unnecessary or even harmful treatments.*

**Objective:** *The purpose of this study is to analyze the correlation between the initial diagnosis identified at the level of the emergencies department and the diagnosis being confirmed at the hospital medical department, with the aim of elaborating an action plan for a clinical approach to reduce diagnostic errors in the emergency department.*

**Materials and methods:** *This study is a prospective and descriptive analytical one that builds on a compilation of the diagnostic hypotheses of patients who are admitted and hospitalized on the day of their admission to the pediatric emergencies department of the pediatric hospital Rabat. Patients with purely clinical confirmatory diagnoses as well as patients having a previously confirmed diagnosis were excluded from this study. The diagnostic hypotheses are discussed in the daily morning meeting of the department in order to discuss and retain the most probable initial diagnosis. The correlation is checked by following up on the file of the patient admitted in the pediatric department.*

**Results:** *The study covered 100 initial diagnoses in the pediatric emergency department. The correlation was positive for 95 diagnoses (95% of the cases). There was a 5% negative correlation as follows: convulsion (1% of the cases), infectious endocarditis (1% of the cases), congenital heart disease (1% of the cases), pyelonephritis (1% of the cases), acid-ketotic decompensation (1% of the cases).*

**Conclusion:** *It is crucial to have a structured and chronological questionnaire starting from the first abnormal symptom, and declining the main diagnostic hypotheses favoring therapeutic emergencies.*

**Keywords:** *Correlation, Diagnosis, Error*

## INTRODUCTION:

Emergencies are often subject to strong time pressure that changes throughout the day and over the week [1] the difficulties are increased by the dynamic nature of the situation: the diagnosis must be made quickly compared to the other services because of the potential seriousness and the possible evolution of the pathology [2]. All these constraints in interaction with the limits of the cognitive system can lead to misdiagnosis. Diagnostic error has the main risk of delaying effective treatment, but also risks of unnecessary or even harmful explorations and treatments. The frequency of errors can be reduced by a better knowledge of the situations representing a risk in addition to the causes of diagnostic errors or an underestimation of the severity, and regular evaluation of the quality of the diagnostic procedure in emergencies. The aim of this study is to evaluate the correlation between the initial diagnosis completed at the level of the emergencies and the one confirmed at the hospital's pediatric department in order to elaborate an action for a useful clinical approach that would reduce the errors of diagnosis in the emergencies.

## MATERIALS AND METHODS:

This is a prospective descriptive and analytical study comparing the diagnostic hypotheses of 100 patients admitted to the pediatric medical emergencies of the pediatric hospital of Rabat and hospitalized on the day of their admission. The population covered by this study is composed of kids of whom the age varies between 1 day of life and 15 years having been hospitalized in the pediatric medical emergencies in the service of pediatrics 2 at the Rabat children's hospital. Patients with purely clinical confirmatory diagnoses as well as patients coming with an already confirmed diagnosis were excluded from this research. Diagnostic hypotheses are discussed in the daily morning huddle of the pediatric medical emergency department in order to discuss and retain the most probable initial diagnosis. The correlation is checked by following up on the file of the patient hospitalized in the pediatric department 2. Data collection was carried out on a pre-established data sheet containing information on the age of the patient, the reason for consultation in the emergency department, the initial diagnosis referred to in the emergency room, the reason for hospitalization, and the confirmed diagnosis in the pediatric department. The data was analyzed using Excel.

## Results:

The study covered 100 initial diagnoses registered at the Pediatric Medical Emergency Department in Rabat children's hospital. Out of the 100 patients covered in this study, 59 were male and 41 female with a sex ratio of 1.44. The mean age of the study population is 4.38 years (min: 1 day of life - max: 15 years). The most frequent diagnoses were: acid-ketotic decompensation, bronchiolitis, ingestion of foreign bodies. The correlation of the diagnoses was positive in 95% of the cases, in the remaining 5% the absence of correlation concerned: convulsion (1% of the cases), infectious endocarditis (1% of the cases), congenital heart disease (1% of cases), Pyelonephritis (1% of cases), acidketotic decompensation (1% of cases) (Table 1) The mean age of patients in whom the correlation is negative is 5.6 years with a sex ratio of 1.5.

**Table 1: Diagnostic errors in pediatric medical emergencies**

Age and sex	Initial diagnosis	Confirmed diagnosis
1. 2 years: Male	• Apyretic convulsion	• Febrile convulsion
2. 9 years old: Male	• Infectious endocarditis	• Rheumatic cardite
3. 8 months: Female	• Congenital heart disease	• Viral myocarditis
4. 3 years and 4 months: Female	• Pyelonephritis	• Cystitis
5. 13 years old: Male	• Inaugural acid-ketotic decompensation	• Inaugural Diabetes

## Discussion:

Working in an emergency department requires a diagnosis and an action decision with vital concerns, in a context of often strong time pressure in the emergency department. The background and information in general may be unclear. An error is not the result of a single person or procedure but rather the result of multiple factors that influence clinical work [2]. In literature, diagnostic errors are minority for Rubin [3], for Dovey [4, 5], for Woolf [6]. They remain important even if they are not the most frequent for Bhasale [7, 8]. For Laura Cerland, diagnostic errors are the most frequent with almost 77% of errors. The most common diagnostic error is diagnosis delay followed by erroneous diagnosis followed by errors in the interpretation of clinical data [9]. In our study, diagnostic errors accounted for 5% of cases. Diagnostic errors result from failure to observe one or more steps in the diagnostic procedure. Four causes are particularly common:

### Errors due to insufficient evaluation of a symptom: [10]

The symptom may lead to poor localization of the condition or may be atypical at certain ages. Trap symptoms may also be symptoms not adequately characterized by the doctor. (Table 1). In our study, the error due to insufficient evaluation of a symptom concerned the evaluation of the fever.

**Table 1: Errors due to insufficient evaluation of a symptom**

<i>Symptom</i>	<i>Initial diagnosis</i>	<i>Confirmed diagnosis</i>
Convulsion	Apyretic convulsion	Fever Convulsion
Burning urine	Pyelonephritis	Cystitis

**Errors by omission of a diagnostic hypothesis: [11]**

The omission of a diagnostic hypothesis is the second major cause of diagnostic error due to poorly ordered or insufficiently known etiological tables. Differential diagnostic literature usually only lists of causes that are complete but not hierarchical and difficult to remember. This emphasizes the importance of creating well-classified etiological tables (Table 2). In our study, error due to the omission of a diagnosis hypothesis concerned diagnoses to be discussed first, given their severity to ensure immediate management.

**Table 2: Errors by omission of a diagnostic**

<i>Symptom</i>	<i>Initial diagnosis</i>	<i>Confirmed diagnosis</i>
Heart murmur+ fever	Infectious Endocarditis	Rheumatic fever
Cyanosis Access	Congenital heart disease	Viral Myocarditis

**Errors by underestimation of severity: [12]**

Signs of severity are identified by examination and simple inspection of the child. Inspection of the child - particularly the assessment of the spontaneous behavior of the child - is an essential time (spontaneous motility, interest in the environment), followed by coloring, respiration (frequency, thoracic amputation, signs of struggle), Sweating, eye circles in our study, no error due to underestimation of severity have been detected.

**Errors due to lack of anticipation of secondary aggravation: [13]**

The risk of secondary aggravation must be assessed especially before any return home. It is therefore necessary to assess the risk of recognizing it in time: the level of understanding of the parents, the possibilities for them to react (telephone, vehicle). Surveillance boards with indications to re-consult must be simple and easy to appreciate for parents. In our study, no error due to lack of anticipation of secondary aggravation have been detected.

**CONCLUSION:**

Procedures for the systematic analysis of the diagnostic errors that occur before the arrival in the emergencies as in the emergencies make it possible to improve the diagnostic procedure by identifying the weak steps of the diagnostic procedure. The quality of the diagnosis can also be studied in hospitalized patients by comparing the diagnosis made in the emergencies and the diagnosis of end-of-stay. However, this evaluation is difficult because it assumes a hospital information system that makes it easy to know this final diagnosis, and seems interesting only if it is done in an iterative way and on traceable conditions [13]. The analysis of the causes of early iterative consultations in emergencies makes it possible to assess the appropriateness of exit indications [14]. Hence, it is important to set up evaluation procedures which are excellent examples of ongoing professional practice evaluation.

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