# The Outcome of Blood Cultures in Febrile Children Presenting at the Emergency Department

**Khalil Salameh*, Awean GZ[1], Alkume N[2] and Abdussalam Shah AK[1]**

*[1]Department of Pediatrics, Hamad Medical Corporation, Al Wakra Hospital, Qatar*

*[2]Department of Pediatrics, Sidra Medical and Research Center, Qatar*

***Corresponding author:** Salamah KM, Department of Pediatrics, Hamad Medical Corporation, Al Wakra Hospital, Qatar, Tel: 0097440114258; E-mail: ksalameh@hamad.qa

**Received date:** November 24, 2016; **Accepted date:** December 12, 2016; **Published date:** December 19, 2016



## Abstract

**Background:**

of children with fever or history of fever, the prescription of antibiotics, the association to other markers of infection and the referral to hospital wards.

## Subjects and Methods

This was a retrospective study carried out on patients who visited the Pediatric Emergency Department at Al Wakra Hospital (AWH), Qatar - over one year (01-06-2012 to 31-05-2013). The study was approved by the Institutional Review Board of Hamad Medical Corporation, Doha. Following this, a clinical chart review was conducted in order to determine the demographics, clinical presentations, treatment and the blood culture results. The information was entered into an electronic database and subsequently analyzed.

The study population included patients older than 3 months up to 14 years of age. Patients were excluded if they had any of the following: 1) age less than or equal to 3 months, 2) had a congenital or an acquired immune deficiency disease or a malignancy. The criteria to obtain a blood culture was fever (38°>C) or a history of fever and no signs of a focal, localized infection, e.g. pneumonia, UTI or tonsillitis/ear infection. Temperature was evaluated by tympanic measurement. Blood samples were collected under aseptic technique by well trained nurses and send for culture and other analysis [such as white blood cell count (WBC), absolute neutrophil counts ANC and C-reactive protein (CRP).

## Statistical Analysis

The statistical analysis was carried out using descriptive statistics, including means and frequencies, and inferential statistics, that included using Student's t test and $\chi^2$ test. Student's t test was used to test the significance of the differences between the mean values of two continuous variables. The $\chi^2$ analysis was performed to test the differences in proportions of categorical variables between ≥2 groups. In 2 × 2 tables, the Fisher exact test replaced the $\chi^2$ test if the assumptions underlying the $\chi^2$ test were violated. The level of $p<0.05$ was considered as the cutoff value for significance. Data analysis was done using SAS software, version 9.4.

## Results

The results of blood cultures (BC) taken over one year for 828 patients is presented in Table 1.

| Characteristic | Number (%) |
|---|---|
| Gender | |
| Male | 469 (56.6) |
| Female | 359 (43.4) |
| Nationality | |
| Qatari | 228 (27.5) |
| Non-Qatari | 600 (72.5) |
| Age, years | |
| All, Median, (Range) | 3.55 (0.25-13.83) |
| ≤ 3 | 464 (56.0) |
| >3 to 6 | 205 (24.8) |
| >6 to 10 | 107 (12.9) |
| >10 | 52 (6.3) |
| Blood culture | |
| Positive | 20 (2.42) |
| Negative | 808 (97.6) |
| Antibiotic Use | |
| Before blood culture | 83 (10.0) |
| After blood culture | 559 (67.5) |
| Admissions | |
| Admission for observation (<24 hrs) | 425 (51.3) |
| Admission to PICU | 10 (1.2) |

| | |
|---|---|
| Admission to the pediatric ward | 121 (14.6) |
| Admission to surgical ward | 4 (0.4%) |
| Sent home within 2 hrs | 273 (32.9) |
| Temperature 0C, Median (Range) | 38.9 (36-41.4) |
| Duration of Fever (Days), Median (Range) | 2.0 (1-30) |
| Laboratory Results | |
| WBC, Median (Range) (x103/ul) | 11.5 (2.0-30.8) |

| | | | |
|---|---|---|---|
| Qatari | 5 (25.0) | 223 (27.6) | 0.7946 |
| Non-Qatari | 15 (75.0) | 584 (72.4) | |
| Age | | | |
| ≤3years | 14 (70.0) | 449 (55.6) | |
| >3 to 6 years | 4 (20.0) | 201 (24.9) | 0.5806 |
| >6 to 10 years | 1 (5.0) | 106 (13.1) | |
| >10 years | 1 (5.0) | 51 (6.3) | |
| Admissions | | | |
| Admission for observation <24hrs) | 9 (45.0) | 415 (51.42) | 0.843 |
| Admission to PICU | 0.0(0.0) | 10 (1.24) | 0.6165 |
| Admission to the pediatric ward | 4 (20.0) | 117 (14.5) | 0.4916 |
| Send home within 2hrs | 7 (35.0) | 266 (32.9) | 0.8481 |
| Fever | | | |
| Degree of fever, Mean ±SD | 39.27 ± 0.91 | 38.8 ± 1.09 | 0.0350* |
| Lab Results | | | |
| WBC, Mean ±SD (x103/ul) | 14.25 ± 7.00 | 12.97 ± 12.11 | 0.4402 |
| ANC, Mean ±SD (x103/ul) | 8.44 ± 5.46 | 7.87 ± 5.17 | 0.6484 |
| CRP, Mean ±SD (mg/L) | 36.4 ± 39.5 | 46.99 ± 67.36 | 0.4326 |
| Antibiotic Use | | | |
| Before blood culture | | | |