THE PROFILE OF NEONATAL SEPSIS IN DUHOK CITY AND PREDICTORS OF MORTALITY: A PROSPECTIVE CASE SERIES STUDY

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ABSTRACT

Background: Neonatal sepsis is a major cause of death all over the world. Risk factors represent an interaction between maternal-fetal colonization and each of transplacental immunity and the defense mechanisms of the neonate. This study is to assess the epidemiological, clinical and laboratory profiles of neonates with sepsis in relation to outcome and to determine the predictors of outcome.

Subject and Methods: A prospective study included neonates with sepsis admitted to neonatal care unit. 126 neonates with features of sepsis were included with age ranged from (1-30) days. From each patient, neonatal and maternal data were collected and clinical features as well as laboratory test results of hemoglobin, platelets count, total white blood cell and absolute neutrophil count, C- reactive protein and blood culture were collected and statistically analyzed.

Results: of 126 neonates, 32 (25.39%) died while others survived. Age < 7 days was in 61.9% of all cases, 69.84% had respiratory distress syndrome, 7.93% had hypoxic ischemic encephalopathy, 60.31% were preterm, 61.9% were born vaginally and male to female ratio was 1.73:1. There is a significant relation of mortality to respiratory distress syndrome and hypoxic ischemic encephalopathy, preterm delivery, low birth weight and male gender. Vomiting, apnea, sclera, cyanosis and tachypnea were significantly related to the mortality. Eschericia coli were the most common followed by Klebsiella sp. The highest mortality is with Acenatobacterbaumani followed by Staphylococcus aureus with a significant relation. The C reactive protein was>10 mg/dl was in higher number of neonates with sepsis who died by comparison to those who survived, with a significant relation.

Conclusions: Neonatal sepsis is still a common cause of mortality in neonates with change in the pattern of causative organisms and this requires more monitoring and periodic surveillance. There is a real need to find out the local antibiotic sensitivities of pathogens to establish an optimal empirical treatment before the results of culture and sensitivity are available.

Keywords: Neonatal sepsis, Duhok city, A prospective case.

Neonatal sepsis is a major cause of death all over the world. Up to 4 million neonates die annually in developing countries most commonly due to sepsis, hypoxic ischemic encephalopathy, and consequences of prematurity and low birth weight. The incidence of neonatal sepsis is significantly higher in developing countries than in developed ones 1-4 vs 10-50/1000 live birth. Also, this incidence varies from a neonatal nursery to another and even it varies within the same nursery from time to time and depending...

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on the predisposing conditions\textsuperscript{6}. Risk factors represent an interaction between maternal-fetal colonization and each of transplacental immunity and the defense mechanisms of the neonate, both physical and cellular\textsuperscript{7}. Sepsis in neonates manifests as either focal or non-specific signs and symptoms of infection\textsuperscript{4}. The virulence of the microorganism and neonate’s inflammatory response to that agent determine the clinical manifestations. The term systemic inflammatory response syndrome (SIRS) describes the unique process of infection and the subsequent systemic response\textsuperscript{4} while the term systemic inflammatory response(SIR) describes the syndrome that includes two or more of the following: tachycardia, tachypnea, fever or hypothermia, and abnormal white blood cells in immature forms. It is important to evaluate tests for neonatal sepsis because the infection may be a serious threat to the neonate. It is urgently necessary to know if the neonate has sepsis to start treatment as early as possible\textsuperscript{8}. There is no enough specificity and sensitivity of any single laboratory test used and therefore lab confirmation must be used in conjunction with risk factors and clinical signs\textsuperscript{5}. The lab tests used are: blood, urine and cerebrospinal fluid culture, profile of white blood cells, platelet count, acute phase reactants (ESR, C reactive protein), latex agglutination tests, or counter immune electrophoreses, and Polymerase Chain Reaction (PCR)\textsuperscript{4-7,9}. Synthesis of C reactive protein (CRP) increases within (4-6) hours and then doubles every 8 hours after that and peaks at 36-50 hours after the onset of inflammation. With ongoing inflammation and tissue destruction, CRP level remains high, but declines rapidly with resolution of inflammation because of short half-life (4 to 7 hrs.), so it is parallel to the degree of injury and repair and this supports its value as an acute measure of disease activity. In the serum of normal healthy person CRP is in very low concentration \(< 0.02 \text{ mg/dl} \) and mostly does not exceed 6 mg/dl\textsuperscript{10-13}. Depending on the definition of sepsis, the mortality rate from sepsis varies. When all bacteremic infections are included in the definition, the reported mortality rate in neonatal sepsis is 10-40\%\textsuperscript{5}. To anticipate from the clinical history, to suspect from clinical presentation and to confirm diagnosis by preliminary laboratory test are essential to maintain intact survival of the neonate with sepsis\textsuperscript{7}. To the best of our knowledge, there are no enough studies that cover this very vital subject in our locality. This study was accomplished on neonates with sepsis to assess the epidemiological, clinical and laboratory profiles of neonates with sepsis in relation to outcome (survival and mortality) and to determine the predictors of outcome.

**METHODS**

A prospective study was accomplished on neonates with sepsis who have been admitted to neonatal nursery at Maternity and Obstetric Hospital in Duhok city from the first of March 2015 to the first of March 2016. A total of 126 neonates with features of sepsis were included (we excluded neonates with previous use of antibiotic and those having congenital anomalies). Their age ranged from (1-30) days. The following data were taken: name, age, sex, mode and place of delivery, date of admission, gestational age

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(was assessed using Dubowitz criteria)\textsuperscript{4}, any history of acute neonatal suffering i.e. any illness during birth or soon after it such as hypoxic ischemic encephalopathy and respiratory distress. Maternal data included: history of prolonged rupture of membrane more than 24 hour, antibiotic use, fever, and urinary tract infection (UTI). Clinical features of neonates included: lethargy, poor feeding, diarrhea, coffee-ground vomiting, temperature instability, convulsion, pallor, jaundice, cyanosis, tachycardia, apnea, respiratory distress, mottled skin, sclerema, omphalitis, hepato-splenomegaly and abdominal distension. The neonates were followed throughout their presence in the hospital and were divided into those who remained alive and those who died. A sample of 0.5 ml of blood was taken from every neonate for estimation of hemoglobin, platelets count, total white blood cell and absolute neutrophil count and before antibiotic use. A sample of at least 2ml of blood per set was taken from peripheral vein from 2 separate sites after adequate disinfection of skin by iodine solution that was left to dry and then wiped off using (70%) alcohol, then the both samples were cultured aerobically and anaerobically. C-reactive protein was measured using 0.5 ml of blood collected in a plain tube without EDTA by latex-agglutination test. The cutoff value for CRP > 10mg/dl\textsuperscript{4,5,10-13} was considered positive.

**STATISTICAL ANALYSIS**

Statistical analysis was done using SPSS package 20, data were expressed as mean + SD, Chi-square and exact Fisher's test were used for comparison of proportions, P-value of less than 0.05 was considered as statistically significant, P-value <0.01 as highly significant and P-value <0.001 as extremely significant.

The homogeneity of patients’ age, weight, and BMI was examined through the One-way ANOVA statistical tests. The differences between sensory and motor duration among three study groups were evaluated through the One-Way ANOVA and post-hoc statistical tests and chi-squared tests for adverse effects of different doses of dexamethasone. The p-value less than 0.05 was considered as statistically significant and less than 0.01 as a clinically substantial difference. The Statistical Package for Social Sciences version 23:00 (SPSS: IBM) was used for statistical calculations.

**RESULTS**

Among all participants, 32 (25.39%) died while others survived. Most common age of patient was less than 7 days in 61.9% of all cases, 69.84% had respiratory distress syndrome, 7.93% had hypoxic ischemic encephalopathy, 60.31% were preterm, 61.9% were born vaginally and male to female ratio was 1.73:1. The outcome of sepsis in relation to neonates’ characteristics is shown in Table 1. There is a significant relation of mortality to respiratory distress syndrome and hypoxic ischemic encephalopathy, preterm delivery, low birth weight and male gender.
THE PROFILE OF NEONATAL SEPSIS IN DUHOK CITY AND PREDICTORS

Table 1: The Relation of Neonates' Variables to the Outcome of Neonates with Sepsis

| Variables               | Alive 94 (%) | Dead 32 (%) | P value |
|-------------------------|--------------|-------------|---------|
| Age (days)              |              |             |         |
| <7 (78)                 | 56(71.7%)    | 22(28.3%)   | 0.256   |
| 7-28 (48)               | 38(79.1%)    | 10(20.9%)   |         |
| Acute suffering         |              |             |         |
| RDS* (88)               | 62(70.4%)    | 26(29.6%)   | 0.031   |
| HIE** (10)              | 6 (60%)      | 4(40%)      |         |
| None (28)               | 26(92.8%)    | 2(7%)       |         |
| Gestational Age         |              |             |         |
| Preterm (76)            | 48(63.1%)    | 28(36.9%)   | 0.0001  |
| Term (50)               | 46(92%)      | 4(8%)       |         |
| Birth weight (grams)    |              |             |         |
| Mean +/- SD             | 2288 +/- 776 | 1825 +/- 588| 0.0001  |
| Delivery mode           |              |             |         |
| Vaginal (78)            | 56(71.8%)    | 22(28.2%)   | 0.256   |
| Caesarean (48)          | 38(79.2%)    | 10(20.8%)   |         |
| Sex                     |              |             |         |
| Male (80)               | 54(67.5%)    | 26(32.5%)   | 0.009   |
| Female (46)             | 40(87%)      | 6(13%)      |         |

*Respiratory distress syndrome
** hypoxic ischemic encephalopathy

The maternal characteristics include prolonged rupture of membranes that occurred in 3.17% of cases, the use of antibiotics before delivery in 7.93%, maternal fever in 9.52% and urinary tract infection in 17.46% of all cases. As shown in Table 2, none of these variables was significantly related to the outcome of sepsis.

Table 2: The Relation of Neonates' Variables to the Outcome of Neonates with Sepsis

| Variables       | Alive 94 (%) | Dead 32 (%) | P value |
|-----------------|--------------|-------------|---------|
| PROM*           | Yes 4(100%)  | 0 (0%)      | 0.222   |
|                 | No 90(73.8%) | 32(26.2%)   |         |
| Antibiotics use | Yes 8(80%)   | 2(20%)      | 0.625   |
|                 | No 86(74.2%) | 30(25.8%)   |         |
| fever           | Yes 6(50%)   | 6(50%)      | 0.092   |
|                 | No 88(77.2%) | 26(22.8%)   |         |
| UTI**           | Yes 16(72.8%)| 6(27.2%)    | 0.955   |
|                 | No 78(75%)   | 26(25%)     |         |

*Respiratory distress syndrome
** hypoxic ischemic encephalopathy

The clinical symptoms of sepsis are presented in Table 3. Lethargy and poor feeding are the most frequent symptoms. Vomiting is significantly related to mortality while the other symptoms are not.

Table 3: The Role of Clinical Symptoms as Predictors of Mortality in Neonates with Sepsis

| Symptoms        | Alive 94 (%) | Dead 32 (%) | P value |
|-----------------|--------------|-------------|---------|
| Lethargy        | Present 66(75%) | 22(25%) | 0.967   |
|                 | Absent 28(73.7%) | 10(26.3%) | 38      |
| Poor feeding    | Present 62(73.8%) | 22(26.2%) | 84      | 0.622   |
|                 | Absent 32(76.2%) | 10(23.8%) | 42      |
| Diarrhea        | present 4(66.7%) | 2(33.3%) | 6       | 0.701   |
|                 | Absent 92(75.4%) | 30(24.6%) | 120     |
| Vomiting        | present 12(54.6%) | 10(45.4%) | 22      | 0.027   |
|                 | Absent 82(78.9%) | 22(21.1%) | 104     |
| Seizures        | present 12(66.7%) | 6(33.3%) | 18      | 0.483   |
|                 | Absent 82(75.93%) | 26(24.07%) | 108     |

*Respiratory distress syndrome
** hypoxic ischemic encephalopathy

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Tachypnea, cyanosis, sclerema and apnea were the most frequent signs in septic neonates followed by jaundice, fever, hypothermia and abdominal distension. As shown in Table 4, apnea, sclerema, cyanosis and tachypnea were significantly related to the mortality.

| Sign            | Alive 94 | Dead 32 | Total | P value |
|-----------------|----------|---------|-------|---------|
| Fever present   | 26(86.7%)| 4(13.3%)| 30    | 0.061   |
| Fever absent    | 68(70.9%)| 28(29.1%)| 96    |         |
| Hypothermia present | 14(58.4%)| 10(41.6%)| 24    | 0.063   |
| Hypothermia absent | 80(78.5%)| 22(21.5%)| 102   |         |
| Cyanosis present | 24(57.2%)| 18(42.8%)| 42    | 0.004   |
| Cyanosis absent  | 70(83.4%)| 14(16.6%)| 84    |         |
| Apnea present   | 22(55%)  | 18(45%)  | 40    | 0.001   |
| Apnea absent    | 72(83.73%)| 14(16.27%)| 86    |         |
| Tense fontanel present | 4(50%)  | 4(50%)  | 8     | 0.121   |
| Tense fontanel absent | 90(76.3%)| 28(23.7%)| 108   |         |
| Tachypnea present | 38(86.4%)| 6(13.6%)  | 44    | 0.017   |
| Tachypnea absent  | 56(68.3%)| 26(31.7%)| 82    |         |
| Pallor present  | 14(77.8%)| 4(22.2%)  | 18    | 0.653   |
| Pallor absent    | 80(74.1%)| 28(25.9%)| 108   |         |
| Jaundice present | 28(77.8%)| 8(22.2%)  | 36    | 0.487   |
| Jaundice absent  | 66(73.4%)| 24(26.6%)| 90    |         |
| Purpura present  | 6(75%)   | 2(25%)   | 8     | 0.918   |
| Purpura absent   | 88(74.6%)| 30(25.4%)| 118   |         |
| Sclerema present | 24(57.2%)| 18(42.8%)| 42    | 0.004   |
| Sclerema absent  | 70(83.4%)| 14(16.6%)| 84    |         |
| Abdominal distension present | 12(60%) | 8(40%) | 20 | 0.139   |
| Abdominal distension absent | 72(75%) | 24(25%) | 96 |         |
| Hepato-splenomegaly present | 2(50%) | 2(50%) | 4 | 0.281   |
| Hepato-splenomegaly absent | 92(75%) | 30(24.6%)| 122 |         |

*Respiratory distress syndrome
** Hypoxic ischemic encephalopathy

According to the results of blood culture, the most common isolated bacteria were Eschericia coli followed by Klebsiella sp. and then Non coagulase staphylococci and non-lactose fermenters. As in Table 5, the highest mortality is with Acinetobacter baumannii followed by Staphylococcus aureus and then Escherichia coli and Klebsiella sp. with a significant relation.

| Bacteria isolated              | Total | Alive 94 | Dead 32 |
|---------------------------------|-------|----------|---------|
| **Escherichia coli**            | 74    | 54 (72.98%) | 20 (27.02%) |
| **Klebsiella sp.**              | 18    | 13 (72.23%) | 5 (27.77%)  |
| **Non coagulase staphylococci**| 11    | 11 (100%)  | 0 (0%)    |
| **Non lactose fermentors**      | 11    | 11 (100%)  | 0 (0%)    |
| **Acinetobacter baumannii**     | 4     | 0 (0%)    | 4 (100%)  |
| **Staphylococcus aureus**       | 4     | 2 (50%)   | 2 (50%)   |
| **Gram positive cocci**         | 4     | 4 (100%)  | 0 (0%)    |

\[ P=0.003 \]
The hematologic variables are presented in Table 6. The mean hemoglobin, platelet count, white blood cell count and platelet count is lower in neonates who died of sepsis as compared to those who survived but no statistical significance was found. The C reactive protein as shown also in this table is ≥10mg/dl in a significantly higher number of neonates with sepsis who died by comparison to those who survived, with a significant relation.

| Variables                  | Outcome       | P   |
|----------------------------|---------------|-----|
|                            | Alive 94     | Dead 32 |
| Hemoglobin (g/dl)          | 14.6+/- 3.7   | 13.4+/- 3.9 | 0.18 |
| Platelets (cell / mm3)     | 176+/- 136    | 174.78+/- 172.15 | 0.075 |
| White blood cells (cell / mm3) | 15.1+/-9.48  | 14.4+/-.947  | 0.091 |
| Absolute neutrophil count (cell / mm3) | 13.6+/-4.2  | 5.9+/-.4.8  | 0.077 |
| C-reactive protein         | Positive 59   | 28   | 0.003 |
|                            | Negative 35   | 4    |     |

**DISCUSSION**

To evaluate the perinatal care in a community it is wise rely on the neonatal mortality rate to establish an effective health care delivery system. It is very essential to have an integrated statistical information about the neonatal mortality in order to develop a sound program for the early diagnosis of the neonatal sepsis and assessment of treatment and outcome. Neonatal sepsis may just manifest as diverse, subtle and nonspecific signs and symptoms. If the diagnosis is not made early and treatment not started immediately, both morbidity and mortality rates rise significantly. Mortality from neonatal sepsis in this study was 25.39%, which is close to the results of other studies where it was in United Arab Emirates (26%) in USA, and Saudi Arabia it was 28% in United Arab Emirates (26%). It is higher than what was found in Nigeria, where it was 19.3% but the mortality is lower than two Iraqi studies where they were(44.2%) and (43.5%) a study in Nepal(36.95%) a Saudi study (44%) and Mexican study (43.9%). Many factors explain the difference in mortality rate among different countries like use of ventilators, different microorganisms, socioeconomic and racial factors, incubators, use of different antibiotics and geographical factors. Although early onset sepsis is more frequent in this study and the mortality is higher than late onset, it is not significant. Other studies have proved similar results with significant differences and conversely, others found late onset sepsis to be associated with higher mortality. However, the causative agents in early onset sepsis mainly comes from mother’s genitor-urinary tract while in late onset sepsis it comes from prolonged antibiotic use, invasive procedures and prolonged hospitalization. Male gender is a predictor of mortality in this study, which suggests the probability of sex related factors in host susceptibility. Similar results were found by other studies while others did not find any role of sex in predilection to mortality. Mostly, because of inherent immunodeficiency in premature neonates.

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and the need for prolonged hospitalization in low birth weight neonates, sepsis was more common and mortality was higher in these two groups of neonates in our study. This is similar to what was found in other studies in different parts of the world \cite{15,17,22,23,27-29}, but different from other studies \cite{21,31} that found them not significant. Neonates who had, in addition to sepsis, other acute illnesses like respiratory distress and hypoxic ischemic encephalopathy did show a significantly higher mortality in agreement with what was found in other studies \cite{17,23} because they need prolonged hospital stay and may be subjected to more invasive procedures. Similar to what was found in a Saudi study \cite{22}, prolonged rupture of membranes was not found frequently in septic neonates and is not predictor of mortality from sepsis, probably because the affected mothers are treated with antibiotics in such cases which seems to be protective for neonate. This is in contrast to other different studies that found it a significant factor \cite{15,19,24,27,29-31}.

Among presenting signs and symptoms of sepsis, predictors of mortality were apnea, cyanosis, sclerema and vomiting in accordance with other studies \cite{1,s19,23,27,30}. The causative microorganisms isolated from blood culture were most commonly *Escherichia coli* followed by *Klebsiella sp*. with similar mortality rates, while the highest rate of mortality was found with *Acinetobacter baumannii* followed by *Staphylococcus aureus*. This is similar to another study \cite{30} but in contrast to an Iraqi study \cite{19} where the mortality rates were *P. aeruginosa* (100%), *Staphylococcus aureus* (100%) followed by *klebsiella* (71.1%) and *E. coli* (48.5%) and other different studies showed similar results \cite{15,20-23,26,32}. The hematological variables including hemoglobin, white blood cells, absolute neutrophil count and platelets were found lower in septic neonates who died as compared to those who survived but this difference was not significant. These were found significantly lower in those who died in other studies \cite{12,19,23,33,34} since the toxins produced by the causative bacteria suppress the bone marrow hematopoietic process.

The mortality was higher in septic neonates with C-reactive protein level > 10 mg/dl. This agrees with other studies \cite{10,13,19,34}. CRP has a high sensitivity and specificity with high negative predictive values and high positive predictive values as well \cite{12}.

The main limitation of this study was that serum procalcitonin was not measured for the neonates with sepsis since it is more sensitive and specific than CRP.

In conclusion, Neonatal sepsis is still a common cause of mortality in neonates. There is a change in the pattern of organisms causing sepsis in the newborn. This requires more monitoring and periodic surveillance, and there is a real need to find out the local antibiotic sensitivities of pathogens to establish an optimal empirical treatment before the results of culture and sensitivity are available.

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توخّت

سيماي تیسبوئونا خوئینی لدیف دازوکیت سافا د لدوک و ثیبیئینکارنا نادجئامی وی
دجووری ماکیودا دیوار هی. ظا کولینییا شاتشیپی لساتر 105 نخوشان

ثیکیئی:
تیسبوئونا نئتیه خوئینی تیسبوئونا خوئینی لدیف دازوکیت سافا د لدوک و ثیبیئینکارنا نادجئامی وی
دجووری ماکیودا دیوار هی. ظا کولینییا شاتشیپی لساتر 105 نخوشان

روشکی ظا کولینییا:
نئت ظا کولینییاکارنا کون لساتر دازوکیت سافا د 7وی دیوینی تیسبوئونا خوئینی نئووین هانیئة نظادن لیکاکارا طریکی
لئان خوئینی دازوکیت سافا د 7وی دیوینی تیسبوئونا خوئینی نئووین هانیئة نظادن لیکاکارا طریکی
دویو دیوی کارمی تیسبوئونا خوئینی لئان دازوکیت سافا د 7وی دیوینی تیسبوئونا خوئینی نئووین

چیکیکی نئووین تکئین داده دیوی ۱۹۸۰ دیوینی تکئین داده دیوی

وتکئین نئووین تکئین داده دیوی ۱۹۸۰ دیوینی تکئین داده دیوی

ثیکیئی:
تیسبوئونا نئتیه خوئینی تیسبوئونا خوئینی لدیف دازوکیت سافا د لدوک و ثیبیئینکارنا نادجئامی وی
دجووری ماکیودا دیوار هی. ظا کولینییا شاتشیپی لساتر 105 نخوشان

روشکی ظا کولینییا:
نئت ظا کولینییاکارنا کون لساتر دازوکیت سافا د 7وی دیوینی تیسبوئونا خوئینی نئووین هانیئة نظادن لیکاکارا طریکی
لئان خوئینی دازوکیت سافا د 7وی دیوینی تیسبوئونا خوئینی نئووین هانیئة نظادن لیکاکارا طریکی
doیو دیوی کارمی تیسبوئونا خوئینی لئان دازوکیت سافا د 7وی دیوینی تیسبوئونا خوئینی نئووین

چیکیکی نئووین تکئین داده دیوی ۱۹۸۰ دیوینی تکئین داده دیوی

ثیکیئی:
تیسبوئونا نئتیه خوئینی تیسبوئونا خوئینی لدیف دازوکیت سافا د لدوک و ثیبیئینکارنا نادجئامی وی
دجووری ماکیودا دیوار هی. ظا کولینییا شاتشیپی لساتر 105 نخوشان

روشکی ظا کولینییا:
نئت ظا کولینییاکارنا کون لساتر دازوکیت سافا د 7وی دیوینی تیسبوئونا خوئینی نئووین هانیئة نظادن لیکاکارا طریکی
لئان خوئینی دازوکیت سافا د 7وی دیوینی تیسبوئونا خوئینی نئووین هانیئة نظادن لیکاکارا طریکی
doیو دیوی کارمی تیسبوئونا خوئینی لئان دازوکیت سافا د 7وی دیوینی تیسبوئونا خوئینی نئووین

چیکیکی نئووین تکئین داده دیوی ۱۹۸۰ دیوینی تکئین داده دیوی

نالخچی:
تیسبوئونا نئتیه خوئینی تیسبوئونا خوئینی نئووین هانیئة نظادن لیکاکارا طریکی
لئان خوئینی دازوکیت سافا د 7وی دیوینی تیسبوئونا خوئینی نئووین هانیئة نظادن لیکاکارا طریکی
doیو دیوی کارمی تیسبوئونا خوئینی لئان دازوکیت سافا د 7وی دیوینی تیسبوئونا خوئینی نئووین

چیکیکی نئووین تکئین داده دیوی ۱۹۸۰ دیوینی تکئین داده دیوی

 Coronavirus Disease 2019 (COVID-19) is a respiratory illness that can cause severe illness and even death. It is caused by a new virus called SARS-CoV-2. The virus spreads from person to person through respiratory droplets when an infected person coughs or sneezes. Anyone can be infected, but older adults and those with chronic health conditions are at higher risk of severe illness or death. It is recommended to maintain good hand hygiene, maintain distance from others, and wear a face mask when in public. However, the guidelines may vary depending on the country and region. Therefore, it is important to follow the rules and regulations provided by the respective authorities.
الخلاصة

صورة إنتان الدم عند حديثي الولادة في دهوك ومتونيات الوفاة

الخلفية والأهداف: إنتان الدم عند حديثي الولادة سبب رئيسي للموت في جميع أنحاء العالم. تظهر علامات السريري لمشكل اعراض مقروفة أو غير محددة لانتشار مجموعة متعددة من البكتيريا المسببة لانتشار المرض، بما في ذلك: الأحيائية البلاه، Staph. aureus، Acenatobacter، Klebsiellasp.. هذه المجموعة تشكل نسبة كبيرة من المسببات المحتملة لانتشار إنتان الدم في حديثي الولادة. استعمال مضادات الحيوية لعلاج مناطق إنتان الدم لدى حديثي الولادة سبب في المapatkan ب�单 roi في الأذار2015، ثم في الأذار2016. تم استعمال مضادات حيوية للتعامل مع إنتان الدم عند حديثي الولادة. حيث تم اكتشاف أن نسبة الفئات المصابين بانتشار المرض كانت 61.9% في مجموع الحوامل، 73% في حديثي الولادة، 94.8% في الماضية، و100% في حالات إنتان الدم. تم استخدام سلسلة من المضادات الحيوية لعلاج إنتان الدم عند حديثي الولادة، حيث تم استخدام مضادات حيوية لعلاج إنتان الدم عند حديثي الولادة. النتائج: من على 126 مشارك توفي 32 (39.25%) عمر المصابين أقل من 7 أيام من الحالات. الزمن وجد عند حالة 69.48% انتقال القاع عدد 7.93% والولادة الحادة وجدت عند 60.31% والولادة المهنية وجدت عند 61.9% من الحالات. من العوامل المسببة لانتشار المرض، وكل من عمر التلف، العامل الإصابة بالبكتيريا، دورة العلاج وعينات الدم. النتائج: عند 93.9% من الحالات. استعمال المضادات الحيوية من قبل الأم قبل الولادة وجد عند 3.17% من الحالات. الصناعي الاضطرابات السريرية متنوعة عند المصابين في الحالات الفردية. تتضمن الإصابة الناتجة عن التسمم. TTP / ATR / HUS. يمكن تفتيح E. coli. Staph. aureus. كاشف في الحالات الطبية أو الالتهاب أو التحشير أو الالتهاب أو التهاب. النتائج: عند احتمال الإصابة، 10 ملغم / كل كان أكثر شيوعًا عند المختلفزن مع علاقة لها، بسرعة، في النتائج. الإستنتاجات: إنتان الدم لايزال سببًا مهمًا للوفاة عند حديثي الولادة، وهو تطوير حقيقية لإيجاد سلسلة من المضادات الحيوية لعلاج إنتان الدم عند حديثي الولادة. النتائج: عند احتمال إنتان الدم عند حديثي الولادة، 10 ملغم / كل كان أكثر شيوعًا عند المختلفزن مع علاقة لها.