Knowledge regarding neonatal jaundice among a sample of mothers attending some Primary Health Care centers /Baghdad

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Abstract

**Background:** Neonatal jaundice is most common condition requiring medical evaluation in a newborn and it is yellowish discoloration of the white part of the eyes and skin in a newborn baby due to high bilirubin levels.

**Objective:** To assess the knowledge regarding neonatal jaundice in a sample of mothers attending some Primary Health Care centers, Baghdad.

**Patients and Methods:** A cross-sectional study was conducted including 265 mothers attending some primary health care centers in Baghdad during November and December 2016. They were subjected to previously structured questionnaire covering many aspects of neonatal jaundice distributed in 3 main domains and the mother's responses were gathered and then statistically analysed by frequency, percentages and percent score for each question responses and domain and the overall knowledge mean score.

**Results:** Family and relatives were the main source of information 39.7% and the results revealed that the mean percent score for knowledge responses was 74% for definition of jaundice, 68% for complications of jaundice and 71% for ways of treatment. The mean overall percent score for knowledge was 71%.

**Conclusion:** Good mean overall knowledge level regarding neonatal jaundice among study group.

**Keywords:** Mothers, Neonatal jaundice, Knowledge

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**Received:** 5th March 2019

**Accepted:** 12th May 2019

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**Introduction**

Neonatal jaundice referred to as neonatal hyperbilirubinemia and physiological jaundice of the newborn is a yellow discoloration of the skin and the white part (the sclera) of the eyes [1] Neonatal jaundice is one of the most common and important conditions during the neonatal period [2, 3]. Neonatal jaundice is still a leading cause of preventable brain damage, physical and mental handicap, and early death among infants in many communities [3] It is also a significant cause of neonatal morbidity world-wide and is estimated to be present in 60% of term neonates and 80% of preterm babies [1, 4].
Physiologic jaundice in newborns most commonly occurs because their livers are not mature enough to remove bilirubin from the blood[5]. Bilirubin formed when the body breaks down old red blood cells. A normal increase in red blood cell breakdown and the fact that their immature livers are not efficient at removing bilirubin from the bloodstream [5], this type of bilirubin is called unconjugated or indirect bilirubin [6]. This form of bilirubin is not easily removed from the baby's body. The baby's liver changes this unconjugated bilirubin into conjugated or direct bilirubin, which is easier to excrete [6]. The liver of a newborn baby is immature, so the job of conjugating and removing bilirubin is not done completely well, this causes elevation of bilirubin [5] when jaundice is due to these factors alone, it is termed physiologic jaundice. Neonatal jaundice can be seen in cases of maternal-fetal blood type incompatibility. The mother's body will actually produce antibodies that attack the fetus's blood cells[6]. Nowadays, newborns are discharged early from hospitals, therefore mothers play an important role to recognize jaundice and control it properly [7].

Aim of study to assess level of knowledge of mothers regarding neonatal jaundice attending some primary health care centers, Baghdad.

Patients and Methods

A cross sectional descriptive study included (265) mothers attending some primary health care centers, Baghdad during November and December 2016. They were selected randomly by simple random sampling technique and invited to participate after clarifying the purpose behind the study, assuring high confidentiality and willing participants gave verbal consents and they completed a comprehensive previously prepared self-structured questionnaire in designated areas of health centers.

The questionnaire consists of socio-demographic characteristics and different questions covering the knowledge regarding neonatal jaundice.

Statistical analysis

Statistical analysis was done by(frequency and percentages) for each question responses and a score of [3] was given for each yes answer , [2] for answering don't know and [1] for answering ( No ). The percent score for mothers' responses in each specific item was calculated according to the following equation:

Total scores for all participants in the item X 100 / maximum possible score for all participants in the same item. Where total scores for all participants in the item= [(No. of no x 1) + (No. of don't know x 2) + (No. of yes x 3)]. And maximum possible scores for all participants in the same item=[No. of total mothers x 3], based on Triple Likert Scale and also overall percent score was calculated for each domain (mean percent score for all responses for each domain) and after approximation, the percent score categorized as students who had score less than 60% considered as poor, 60% to 69% as fair, while those with 70% to 79% were considered as good and 80% to 89% as very good[8].
Results

The total number of included mothers was (265). The highest percentage 43.8% in the age group 20-29 years, 34.7% were housewives, 34.7% with secondary level of education, 69.4% delivered by normal vaginal delivery, 38.8% had positive previous babies with history of neonatal jaundice and 36.2% of mothers stated that skin in the site for jaundice detection as shown in Table (1).

Table (1): Distribution of mothers regarding socio-demographic characteristics and jaundice related characteristics (N=265).

| Socio-demographic and jaundice related characteristics | No. | % |
|--------------------------------------------------------|-----|----|
| **Age of mothers(years)**                              |     |    |
| < 20                                                   | 47  | 17.8|
| 20-29                                                  | 116 | 43.8|
| 30-39                                                  | 83  | 31.3|
| ≥ 40                                                   | 19  | 7.1 |
| **Mothers occupations**                                |     |    |
| Manual worker                                          | 46  | 17.3|
| Officer                                                | 88  | 33.2|
| Housewives                                             | 92  | 34.7|
| Private work                                           | 39  | 14.8|
| **Education of mothers**                               |     |    |
| Can read and write                                     | 46  | 17.3|
| Primary                                                | 88  | 33.2|
| Secondary                                              | 92  | 34.7|
| College and more                                        | 39  | 14.8|
| **Type of delivery of the last baby**                  |     |    |
| Normal vaginal delivery                                 | 184 | 69.4|
| Cesarean section                                       | 69  | 26 |
| Others                                                 | 12  | 4.6 |
| **Any previous history of neonatal jaundice**          |     |    |
| Yes                                                     | 103 | 38.8|
| No                                                      | 162 | 61.2|
| **Site for jaundice detection**                        |     |    |
| Skin                                                    | 96  | 36.2|
| Eye                                                     | 85  | 32.1|
| Face                                                    | 78  | 29.5|
| Palms and feet                                         | 6   | 23.8|

The main source of information regarding neonatal jaundice was family/relatives 39.7%, followed by health workers 30.6% as shown in Table (2).
Table (2): Distribution of mothers regarding source of information regarding neonatal jaundice (N=265).

| Source of information | No | %  |
|-----------------------|----|----|
| Health workers        | 81 | 30.6|
| TV/Radio              | 38 | 14.4|
| Family /relatives     | 105| 39.7|
| Internet              | 43 | 16.3|
| Others                | 17 | 6.5 |

The correct knowledge responses of mothers regarding definition of neonatal jaundice was highest 66.7% and 57.7% with percent score 85%,78% regarding appearance of jaundice in the first day needs immediate medical consultation and jaundice is the yellowish coloration of face and eye of the newborn. The overall percent score for this domain was 74% as shown in Table (3).

Table (3): Knowledge of mothers regarding definition of neonatal jaundice (N=265).

| Definition of neonatal jaundice | Yes | No | Don’t know | Percent score |
|---------------------------------|-----|----|------------|---------------|
| Jaundice is yellowish coloration of face and eyes of the newborn | 153 | 57.7 | 61 | 23 | 51 | 19.3 | 78 |
| It is a common problem in the newly born babies | 86 | 32.4 | 42 | 15.9 | 137 | 51.7 | 72 |
| Appearance of jaundice in the first day needs immediate medical consultation | 177 | 66.7 | 35 | 13.3 | 53 | 20 | 85 |
| It is normal to continue neonatal jaundice for 8 week | 54 | 20.3 | 10 | 2 | 38.5 | 109 | 41.2 | 61 |
| Jaundice necessitate many tests for mothers and neonatal | 89 | 33.6 | 22 | 8.3 | 154 | 58.1 | 75 |

*Overall percent score = 74

The knowledge responses of mothers regarding complications of neonatal jaundice were disappointing. The highest correct percentage of responses 46.4% with percent score 76% regarding death followed by brain damage 42.2% with percent score 69% while the lowest percentage of correct responses 27.2% with percent score 61% for deafness. The overall percent score for this domain was 68% as shown in Table (4).
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Table (4): Knowledge of mothers regarding complications of neonatal jaundice (N=265).

| Complications of neonatal jaundice | Yes | No | Don’t know | Percent score |
|-----------------------------------|-----|----|------------|--------------|
|                                   | No  | %  | No         | %            | No  | %            |             |
| Brain damage                      | 112 | 42.2 | 91       | 34.4         | 62  | 23.4         | 69           |
| Convulsions                       | 97  | 36.6 | 86       | 32.4         | 82  | 31           | 68           |
| Mental retardation                | 78  | 29.4 | 90       | 34           | 97  | 36.6         | 65           |
| Deafness                          | 72  | 27.2 | 116      | 43.8         | 77  | 29           | 61           |
| Physical retardation              | 96  | 36.2 | 104      | 39.2         | 65  | 24.6         | 66           |
| Death                             | 123 | 46.4 | 48       | 18.2         | 94  | 35.4         | 76           |

*Overall percent score = 68.

Knowledge responses regarding treatment of neonatal jaundice was highly correct regarding immediate doctor visit 68.3% with percent score 84% and exposure of the baby to fluorescent light 63% with percent score 81% although it was wrong perception, the lowest percentage of correct responses was 14% with percent score 61% regarding frequent wash of the baby. Overall percent score for this domain was 71% as shown in the Table (5).

Table (5): Knowledge of mothers regarding treatment of neonatal jaundice (N=265).

| Treatment of neonatal jaundice | Yes | No | Don’t know | Percent score |
|--------------------------------|-----|----|------------|--------------|
|                                | No  | %  | No         | %            | No  | %            |             |
| Immediate doctor visit         | 181 | 68.3 | 46       | 17.3         | 38  | 14.4         | 84           |
| Exposure of the baby to sun    | 122 | 46  | 59       | 22.3         | 84  | 31.7         | 75           |
| Continuation of breast feeding | 75  | 28.3 | 68       | 25.7         | 122 | 46           | 68           |
| Spontaneous recovery            | 96  | 36.2 | 141      | 53.3         | 28  | 10.5         | 61           |
| Frequent wash of the baby      | 37  | 14  | 80       | 30.2         | 148 | 55.8         | 61           |
| Exposure of the baby to fluorescent light | 167 | 63 | 56 | 21.2 | 42 | 15.8 | 81 |
| Photo therapy                  | 98  | 37  | 66       | 25           | 101 | 38.2         | 70.7         |
| Blood exchange in severe cases | 87  | 32.8 | 68       | 25.7         | 110 | 41.5         | 69           |

*Overall percent score is 71%.

The mean overall percent score for all three domains was 71%.

Discussion

Neonatal jaundice is one of the most common disorders world-wide. In time and proper management to reduce serious neurological complications depends on mother’s knowledge and beliefs about neonatal jaundice. The highest percentage 43.8% of mothers were in the age group 20-29 years which is in agreement with the findings of a study done by(10) in a selected village of Puducherry (42%), while it was lower 35.9% by a study [11] in Provisional General hospital, Badulla [10,11]. It was surprisingly found that only 34.7% of the included mothers were only house wives, while it was much lower (79.5%, 83.05%) in Iran[9,12] and 73.2% of [11] in Badulla [9,11,12].
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Regarding educational level, 34.7% of mothers were with secondary level of education compared to 12% of secondary education by [13] in Nigeria, while 48% of respondents of (10) educated up to primary level, and 13.5% of [9] in Iran had high school education [9,10,13].

The proportion of mothers with positive previous history of neonatal jaundice 38.8%, while the findings of [9,12] were 23%, 72.88% in Iran and 55.7% in Nigeria[13][9,12,13] The site of jaundice detection as stated by the included mothers were 36.2% for skin, 32.1% in eyes, 29.5% in face, 23.8% in palms and feet while the results of(14) in Malaysia skin 95.4%, eye 90.9%, palms and feet 56.2%[14]. The main source of information regarding neonatal jaundice was family /relatives 39.7%, followed by health workers 30.6%, while the results of [13] mothers in Gwaza local government area of Borno state,Nigeria was family 33.0%, friends 59.4% and medical personnel 5.7%,while the findings of [9] revealed that two thirds of participants indicated antenatal clinic as a main source of information[9,13]. The knowledge responses of the included samples regarding the correct definition of jaundice which is the yellowish coloration of face and eyes of the newborn 57.7% which is lower than 90% by a previous study in Iraq [9] also 66.7% of the mothers stated that appearance of jaundice in the first day needs immediate medical consultation, this is because hyperbilirubinemia in the first 24 hours often result due to hemolytic disorder of the newborn [15,16] [9,15,16]. In the current study, 20.3% of mothers had misconception that is normal to continue jaundice for 8 weeks, while more than 60% of mothers of [9] affirmed jaundice lasting more than 2 weeks is not abnormal and 75% were not aware that neonatal jaundice of early onset was abnormal and needed urgent treatment [9]. The health implications of neonatal jaundice related to neurological effects of unconjugated hyperbilirubinemia as severely affected babies develop brain damage with attendant morbidity and or even mortality [4] and in this study 46.4%, 42.2%, 29.4% and 27.2% answered correctly regarding death, brain damage, mental retardation and deafness respectively.

The findings of a study[14] in Malaysia 66.2% of mothers stated death, 42.9% deafness, 51.3% mental retardation while the findings of another Malaysian study [17] 71.7% and 69.7% of mothers answered that severe jaundice could result in death and brain damage [14,17]. A large population of [11] in Provincial general hospital, Badulla had stated 5.4% for mental handicap, 6.5% for neonatal death [11].

Treatment options as claimed by the mothers in the current study was highly correct 63.4%, 37% and 46% for phototherapy, exchange blood transfusion and exposure of the newborn to sun which are lower than the findings of in selected village of Puducherry 93.9%, 45.5% for phototherapy, exchange blood transfusion[10], while Harrison et al [18] revealed that 36% of postpartum mothers
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were in favor of using sun light to treat neonatal jaundice [10,18]. In Badulla[11] , 44% of mothers were aware of phototherapy as a standard treatment of neonatal jaundice, 14.1% were aware for exchange transfusion as a treatment for jaundice . A study conducted by [3] in Nigeria had also justified phototherapy and exchange transfusion remain the standard treatment of neonatal jaundice [11, 3].

Conclusions
The overall mean percent score of knowledge of the mothers regarding neonatal jaundice was good. It was good for definition and treatment, fair for complications of neonatal jaundice.

Recommendations
1-The study could serve as a stimulant for further researches with larger sample size.
2-There is continuous need for a targeted education and awareness program for mothers belonging to different health centers.

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