

## What Do Expectant Mothers Know about Neonatal Jaundice?

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### **Abstract**

*Neonatal jaundice (NNJ) is a common disorder worldwide and many affected babies become brain-damaged due to delay in seeking medical consultation. In order to assess the awareness and knowledge of expectant mothers about NNJ, women who registered for antenatal care at a tertiary health facility in the South-western part of Nigeria were consecutively recruited and interviewed by means of a questionnaire. There were 189 participants whose mean age was 30.1±5.2 years. Median parity was 2. Twenty-five (13.2%) of them completed primary education while 88 (46.6%) attended a tertiary institution. All the 189 participants have heard of NNJ, mainly from co-workers - 77 (40.7%) and hospital staff - 73 (38.6%). One hundred and seven respondents (56.6%) knew how to check a baby for NNJ correctly while only 12.2% knew some causes. Ninety-five (49.7%) did not know any danger sign of NNJ and 58 (30.7%) erroneously believed in the efficacy of drugs. Similarly 28 (14.8%) respondents wrongly believed in the use of unproven local remedy. None of the 189 would-be mothers knew any effective preventive measure. It is concluded that expectant mothers do not have adequate knowledge about NNJ. This can hinder effective management of jaundice in their unborn children. Greater public enlightenment campaign is recommended.*

**Key Words:** Neonatal Jaundice, Antenatal Patients, Unconjugated Hyperbilirubinemia, Mothers' Knowledge and Perception

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## Introduction

Neonatal jaundice (NNJ) is a common disorder worldwide affecting 30-70% of newborn infants.<sup>1-4</sup> It is a frequent cause of hospitalization of babies in the first month of life<sup>5-7</sup>, and a leading cause of neonatal mortality among Nigerian children.<sup>7,8</sup> It may be due to either conjugated hyperbilirubinemia or unconjugated hyperbilirubinemia. However, the latter condition occurs much more frequently and also leads to brain damage (kernicterus) in severe circumstances.<sup>4,9,10</sup> Risk factors for significant unconjugated hyperbilirubinemia have been reported to include cephalohematoma, positive Coomb's test, ABO blood group incompatibility, Rhesus isoimmunization and G6PD deficiency.<sup>11-13</sup> Other identified risk factors are delivery by vacuum extractor, breast-feeding, maternal diabetes, oriental race, short gestation, male sex, and induction of labour with oxytocin.<sup>14-16</sup> In order to prevent the onset of bilirubin encephalopathy, it is important that effective therapy is commenced early. Our clinical experience shows that many affected babies arrive late in hospital with kernicterus. Whether or not this delay in seeking medical consultation is due to lack of awareness or inadequate knowledge on the part of mothers is not clear.

The present study was designed to assess the knowledge of expectant mothers regarding recognition, causes, treatment and complications of NNJ.

## Methods

The study was carried out at the antenatal clinic of a tertiary care facility in the south-western part of Nigeria between October 2004 and March 2005. The participants were expectant mothers who had registered for antenatal care at the above-mentioned clinic and were attending the clinic regularly. After obtaining informed consent, each participant was subjected to a face-to-face interview by means of a questionnaire. Pregnant women who were medical doctors or paramedical staff were excluded from the survey. Participants were not required to disclose their identity.

The survey instrument was a 15-item questionnaire developed by the authors as no appropriate instrument was available. The first part of the questionnaire obtained biographic data of the participants including age, parity, occupation and educational level. Thereafter, there were both multiple-choice and fill-in-the-blank format questions which aimed to assess the awareness and past

experience of the expectant mothers with regard to NNJ, assess their knowledge concerning some of its common causes, treatment and complications and elicit their attitude to the condition. The instrument was pilot-tested on twelve women who were office assistants at the authors' faculty building. It was subsequently revised to remove ambiguity and ensure clarity of the questions. The main survey was conducted by two trained resident doctors of the Department of Obstetrics and Gynaecology of the hospital under the supervision of the second author. Communication between the participants was discouraged during the exercise. The questionnaire used in this survey was developed for the purpose of the study and had not been used in any previous research. Although pre-tested, it was not fully validated and as such, its reliability could not be verified.

Data processing and analysis was conducted by means of statistics software SPSS version 10.0. The data were summarized as descriptive statistics namely median, means, standard deviations and percentages.

## Results

One hundred and eighty nine expectant mothers participated in the survey, their mean age (SD) being 30.1 (5.2) years. There were 22 (11.6%) nulliparous, 64 (33.9%) primiparous, 95 (50.3%) multiparous and 8 (4.2%) grand-multiparous women among them. Median parity of the participants was 2. As shown in table 1, 25 (13.2%) had only primary education while 76 (40.2%) were school certificate holders and 88 (46.6%) had tertiary education. Seventy-five (39.7%) participants were civil-servants while 39 (20.6%) were traders. There were 33 (17.5%) private sector employees and 5 (2.6%) self-employed while 37 (19.6%) were students.

All the 189 (100%) respondents affirmed their awareness of NNJ and their source of information varied from colleagues at work - 77 (40.7%), hospital workers - 73 (38.6%) and neighbors - 33 (17.5%) to parents / parents in-law - 6 (3.2%) (See table 2). Only 10 (5.3%) respondents had previous experience with NNJ. Of these, 5 (50%) managed the condition with drugs on their own at home while the other half did not give any treatment.

One hundred and seven (56.6%) participants knew that checking a baby for the presence of jaundice involved examination of the eyes, skin, palm of the hands and sole of the feet. 68 (36%) would however use the color of the stool or urine of the baby to detect NNJ while 14 (7.4%) did not respond to this

question. Almost half of the participants, precisely 94 (49.7%) did not know that refusal of feeds, high-pitched cry, arching of the back, convulsions and down-turning of the eyes were danger signs signifying complications in NNJ. 71 (37.6%) recognized one or two signs while only 24 (12.7%) could recognize at least 3 of the signs. With regard to aetiology, three major causes of NNJ in our environment were included in the six options given in the multiple-choice question and these three were disparity between the blood group of mother and child, blood infection in the baby and prematurity. Only 23 (12.2%) participants had some knowledge in that they were able to mention one known cause of the condition. On the other hand, 58 (30.7%) subjects had erroneous belief concerning aetiology while the majority, 108 (57.1%) did not know any cause of NNJ. Similarly, 58 (30.7%) respondents had erroneous belief in the effectiveness of certain drugs for the treatment of NNJ. Out of this number, 51 (91.1%) mentioned ampiclox<sup>®</sup> which is a co-formulation of ampicillin and cloxacillin while 6 (10.3%) respondents thought that multivitamin drops could treat NNJ effectively. In the same vein, the number of respondents who believed in the efficacy of herbs and local remedies was 28 (14.8%). They all mentioned the water extract of unripe pawpaw. Only 24 (12.7%) of the participants knew that all the five options listed, namely brain damage, physical handicap, convulsive disorder, abnormal behavior and death, were complications of NNJ. 59 (31.2%) did not know any of the complications while the rest knew some, ranging from 1 to 4 complications.

Concerning their attitude to NNJ, 189 (100%) respondents would report straight to the hospital if they noticed jaundice in their newborn babies. None of the participants would use any medications or local remedies on their own, or place the baby under the sun or take the baby to the herbalist for treatment. As regards preventive measures, none of the expectant mothers knew any effective means of prevention.

## Discussion

The present study observed a good measure of awareness of NNJ among the expectant mothers that participated in the survey. This is probably due to the high literacy level observed among them. This awareness however, is not associated with adequate knowledge of certain aspects of the condition. Whereas one important key to the prevention of kernicterus is early detection of NNJ,<sup>17</sup> followed by appropriate management,<sup>18</sup> many expectant mothers did not know the right way to look for the presence of

jaundice in a baby. There is a need therefore to teach pregnant women to be vigilant and watch out for jaundice on a daily basis after the birth of their babies. This can be included in an information pamphlet to be given to all antenatal clinic attendees. They must also be told during health talks that there may not be alteration of urine or stool color even in the presence of severe NNJ.

Another interesting finding in the present study pertains to the source of information of the respondents about NNJ. There was a conspicuous absence of media organizations among the sources mentioned. Whether this is due to a poor utilization of this medium for the dissemination of health information in our environment or poor patronage by the participants could not be ascertained. However, mass media campaign on radio and television, when accurately packaged, will definitely complement interpersonal contact for transmission of health information.<sup>19,20</sup> The strength of the mass media lies in their potential for gaining access to large numbers of people,<sup>21</sup> and health educators should continue to maximize this potential with regard to public enlightenment on health matters.

The belief that ampiclox<sup>®</sup> is an effective drug in the treatment of NNJ on the part of many participants in this study is a misconception. Even though sepsis is a common cause of NNJ, ampiclox<sup>®</sup> is not the drug of choice for its treatment as gram-negative bacilli, which are generally not sensitive to ampiclox<sup>®</sup>, are important causative agents.<sup>22</sup> Secondly, antibiotics generally have no role to play in the management of NNJ caused by haemolytic disease of the newborn secondary to ABO blood group or Rh incompatibility which is another major cause of NNJ. Women in their child-bearing age should be taught that the mainstay of treatment of jaundice in the newborn is phototherapy within hospital setting, and exchange blood transfusion for severe cases.<sup>18,23</sup> In the same vein, believing in the efficacy of unproven local remedies or herbal preparations such as water extract of unripe pawpaw mentioned by some participants is hazardous. Many affected babies have been rendered kernicteric due to the delay in seeking medical consultation emanating from their mothers' attempt to treat NNJ with such remedies (unpublished data).

The observation that some participants had previous experience with NNJ but failed to seek medical consultation implies that such mothers were unaware of the possible complications that could arise therefrom. Owing to complications like physical handicap, mental retardation, deafness and epilepsy that have been associated with severe form of the condition, NNJ is not a health problem that parents

can treat on their own. As mentioned earlier, health education on the subject must emphasize the need for mothers to take affected children to hospitals for prompt management. Other aspects of gross deficiency of mothers' knowledge about NNJ observed in the present study include its main causes and preventive measures. Apart from ABO incompatibility, neonatal sepsis and prematurity, another major cause of NNJ in our environment is G6PD deficiency.<sup>24</sup> Mothers should be taught to avoid the use of moth balls and menthol which commonly precipitate haemolysis in G6PD deficient infants.

## Conclusion

It is concluded that expectant mothers do not have enough knowledge that can ensure adequate treatment should their unborn children develop NNJ after birth. We recommend that health talks and information pamphlet on NNJ should be given to all pregnant women during antenatal clinic visits. Radio and television commercials can also be used to disseminate information on the condition to the general public so as to increase the depth of knowledge in the community. These messages should emphasize early medical consultation and discourage use of self-medication and reliance on unproven treatment methods.

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**Table 1.** Demographic data of respondents

Mean (SD) age in years	30.1 (5.2)
Median parity	2
Occupation :	
No (%) of civil servants	75 (39.7)
Traders	39 (20.6)
Students	37 (19.6)
Company employees	33 (17.5)
Self-employed	5 (2.6)
Educational level :	
No (%) with: Primary education	25 (13.2)
Secondary education	76 (40.2)
Tertiary education	88 (46.6)

**Table 2.** Source of respondents' information about NNJ

Source	No. (%)
Co-workers	77 (40.7)
Hospital staff	73 (38.6)
Neighbours	33 (17.5)
Parents / parents in-law	6 (3.2)