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The incidence and management of jaundice in newborns in FMC, Ovom Yenagoa, Bayelsa, Nigeria

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Abstract

Neonatal jaundice is one of the occurring things that give rise to the number of deaths and the unhealthy state among newborns in underdeveloped nations that require urgent intervention to reduce its burden. The aim of the study therefore was to determine incidence of newborn jaundice among infant child in Federal Medical Centre, Ovom Yenagoa, Bayelsa State. A descriptive retrospective study design was used to collate data from case files for more than four year period (2009-2012). SPSS version 20 was used to analyze the data collated. Result indicated an incidence of 10.2% over the study period with highest incidence in 2011(13.0%) and the least incidence in 2009 (5.2%). Photo therapies with chemotherapy (47.0%) were the commonest means of management while exchange blood transfusion alone (1.2%) was the least form of management. Management outcome was successful in 71.7% of cases while 4.1% of the babies died. The need for mothers to ensure urgent antenatal and postnatal care and immediate intervention following observation of jaundice in a neonate was emphasized.

Keywords: Incidence, Management, Neonatal jaundice.

Introduction

Berk and Korenblat[1] defined jaundice as a chemical term referring to the yellow appearance of the skin and subcutaneous tissue resulting from increased bilirubin concentration in the body fluids. The normal plasma bilirubin concentration ranges from 5-17µmol/liter and this is made up of almost entirely by almost unconjugated bilirubin. Juandice occurs when the plasma bilirubin concentration exceeding 3mg/dl. Jaundice is a common presentation in many clinical conditions and diseased states. It occurs during pregnancy, liver diseases, congenital conditions like Grigler Nijjar syndrome and Gilbert's disease and more commonly during the neonatal period known as Neonatal jaundice[2]. Neonatal jaundice is the most common and significant form of jaundice responsible for morbidity and mortality among neonates. In developing countries it is a case of serious concern because diagnosis may be delayed or inaccurate leading to poor medical intervention with resultant poor management outcome or even death of the neonate in some cases[3].

According to Wang M.[4], jaundice in newborns is one of the most prevalent circumstances in the world and occurs between 58- 60% for non premature babies and 80% in most premature babies in the first few days after birth. In cases of severe increase in bilirubin in the blood is rare in developed countries unlike in developing nations where neonates develop accumulation of billirubin in the brain known as kerniterus which can result to brain damage[5]. The occurrence and cases of jaundice in newborns differs based on tribes and the physical features of an areas or location[6]. In advance nations of the world, the leading cause of jaundice in newborns is due to the incompatibility of the blood group between the mother and the fetus[7], unlike in developing countries which is mostly as a result of prematurity[8]. G 6 PD, Glucose – 6-Phosphate Dehydrogenase) Deficiency, herbal medications during pregnancy, the use of camphor to store the cloths of newborns, etc make up the bulk of the causes of neonatal jaundice in nations that are underdeveloped. In Serious cases of jaundice of the newborn is said to have changing conditions that increases the chances of developing the disease especially in nations that are under developed[9,10]. The need to know the incidence, causes, management and outcomes becomes important in addressing the problem of neonatal morbidity and mortality in the country and therefore the need for this study.

Methodology

Research design: A descriptive retrospective survey design was used to determine the incidence of neonatal jaundice in Federal Medical Centre, Ovom Yenagoa, and Bayelsa State.

Research setting: This study is conducted in Federal Medical Centre Ovom Yenagoa, Bayelsa State. It is one of the 53 public tertiary hospitals in Nigeria established in September 1999 as a result of Federal Government policy to site Federal Medical Centre's in any state that did not have a Federal Teaching Hospital. It is located in the heart of Yenagoa which is the capital of Bayelsastate; it is easily accessible by road and water and therefore serves as a centre of care and referral in Yenagoa metropolis and the state at large. It has several specialties including pediatrics and child health, obstetrics and gynecology,

surgery, medicine, orthopedic and mental health unit[11]. It was chosen for this study because most women attend to the hospital for their health needs especially during deliveries and sometimes women who are booked for antenatal may also present as emergency for health care unit of themselves and their newborn(s).

Target population: The target population of study consists of all neonates both term and preterm's who presented with neonatal jaundice in Federal Medical Centre Ovom Yenagoa, Bayelsa State.

Sampling technique: A purposive simple random technique was used to collect data from case files of neonates from 2009 – 2012 to determine the incidence of neonatal jaundice over a four year period.

Instrument for data collection: A self-structured and carefully designed proforma (checklist) constructed base on the literature reviewed by the researcher was used to obtain data on the incidence of jaundice in newborns in FMC Ovom Yenagoa. The proforma consist of four sections – A, B, C and D. Section A deals with the socio-demographic data of neonates, B is concerned with causes of neonatal jaundice, C deals with forms of management of neonatal jaundice while D elicits management outcome of jaundice in newborns in FMC, Ovom Yenagoa, Bayelsa.

Validity and reliability of instrument: To ensure face and content validity, the project supervisor will scrutinize the proforma which entails a thorough confirmation of the items of the instrument in terms of clarity of words, sentence structure, language difficulty and relevance to the study while reliability was ensured by undertaken a thorough review of literatures on the incidence of neonatal jaundice.

Method of data collection: The researcher was directly involved in the collection of data from respondents using a performa specifically design to elicit information on the incidence of jaundice in newborns in FMC, Ovom Yenagoa, Bayelsa.

Method of data analysis: The Scientific Package of Scientific Solutions (SPSS) version 17.0 for windows statistical software was used and data collated during the study were analyzed and expressed in frequency and percentages. Chi-square (X^2) was also used for analyses and value of $P < 0.05$ was regarded as been significant.

Ethical considerations: Letter was obtained from the Department of nursing in the Faculty of Health Sciences which is needed to obtain permission and support for the study. The purpose of the study was explained to the person in charge of records and consent was granted based on the premise that information obtained will be treated with ought most confidentiality.

Results and discussion

Results are expressed with Table-1 to 5 which are concerned with the socio-demographic data of respondents, incidence, management, outcome of management and relationship between gestational age and incidence of Neonatal Jaundice.

Table-1: Characteristics survey of Respondents (n = 513).

Characteristics survey (days)		No of respondent	Percent (%)
Period of life	01 to 05	369	71.9%
	06 to 010	89	17.3%
	011 to 015	31	6.0%
	016 to 020	11	2.1%
	021 to 025	3	0.6%
	026 to 028	10	1.9%
Gestation Age	Premature	42	8.2
	Mature	19	3.7
	Not indicated	452	88.1
Maternal Education Status	None	67	13.1
	Primary	106	20.7
	Secondary	116	22.6
	Tertiary	224	43.7
Maternal religion	Christian	484	94.3
	Muslim	21	4.1
	Pagan	8	1.6

Table-1 shows the characteristics distribution of newborns: 369 (71.9%) are 1-5 days old, 89 (17.3%) are 6-10 days old, 31 (6.0%) are 11-15 days old, 11 (2.1%) are 16-20 days old, 3(0.6%) are 21-25 days old while 10 (1.9%) are 26-28 days old; 42 (8.2%) are premature, 19 (3.7%) are mature while 452 (88.1%) were not indicated; 67 (13.1%) of their mothers had no form of education, 106 (20.7%) had primary level of education, 116 (22.6%) had secondary level of education while 224 (43.7%) had tertiary level of education.

Table-2: Neonatal Jaundice in FMC Yenagoa (n = 513).

Year	Frequency (f)	Total No. of Neonates registered in the ward	Incidence (%)
2009	64	1201	5.2
2010	99	1301	7.6
2011	204	1564	13.0
2012	146	1534	9.5
Total	513	5006	10.2

Table-2 shows the incidence of neonatal jaundice for the various years: A total of 513 cases of were seen within the study period (2009-2012). An incidence of 10.2% was observed for the study period while for 2009-2012, the incidence are 64 (5.2%), 99 (1301), 204 (13.0%) and 146 (9.5%) respectively.

Table-3: Causes of Neonatal Jaundice in FMC Yenagoa (n = 513)

Variable	Frequency (f)	Percentage (%)
ABO incompatibility	45	8.8
G-6PD Deficiency	37	7.2
Infection	96	18.7
Prematurity	231	45.0
Camphor	82	16.0
Others	22	4.3

Table-3 shows the causes of neonatal jaundice: 45 (8.8%) due to ABO incompatibility, 37 (7.2%) due to G6PD deficiency, 96 (18.7%) due to infection, 231 (45.0%) due to prematurity, 82 (16.0%) due to camphor and 22 (4.3%) due to other agents.

Table-4: Management Option in FMC Yenagoa (n = 513).

Management Option	Frequency (f)	Percentage (%)
Phototherapy	139	27.1
Phototherapy and Chemotherapy	241	47.0
Exchange blood transfusion	6	1.2
Exchange blood transfusion and phototherapy	127	24.8

Table-4 shows the management options for neonatal jaundice: 139 (27.1%) were managed with phototherapy, 241 (47.0%) managed with phototherapy and chemotherapy, 6 (1.2%) with exchange blood transfusion while 127 (24.8%) exchange blood transfusion and phototherapy.

Table-5: Management Outcome in FMC Yenagoa (n = 513).

Outcome	Frequency (f)	Percent (%)
Discharge	368	71.7
Referred	16	3.1
SAMA (sign against medical advice)	108	21.1
Died	21	4.1

Table-5 shows the outcome management of neonatal jaundice: 368 (71.7%) were successful and discharged, 16 (3.1%) were referred, 108 (21.1%) signed against medical advice while 21 (4.1%) died.

Discussion: The burdens of neonatal jaundice in resource poor countries like Nigeria are profound. Therefore the study was designed to determine incidence of jaundice in newborns in Federal Medical Centre Yenagoa. An incidence of 10.2% was noted during the study period (2009-2011), with the highest incidence in 2011 (13.0%) and least in 2009 (5.2%). Prematurity was the commonest cause of neonatal jaundice while the least cause was from other causes apart from those listed[2].The management options include: phototherapy, chemotherapy, exchange blood transfusion and a combination of the various options. The need to educate mothers on early signs of neonatal jaundice and early presentation for medical intervention was emphasized.

The result shows that on Socio-demographic Characteristics of the Neonates. A total of five hundred and thirteen (n=513) cases of neonatal jaundice were reviewed over a period of 4 years. Majority (71.9%) occurred within the first 1-5 days of life while the least occurred within 21-25 days of life. About half (43.3%) of the women had tertiary level of education while the least (13.2%) had no form of education. Parents are mostly Christians (94.3%). This finding is in line with study that shows that most cases of jaundice in newborns occur in the first few days after birth[12].

However, for Incidence of Neonatal Jaundice in Federal Medical Center Yenagoa. A total of five hundred and thirteen cases of neonatal jaundice was recorded over a four year period. The incidence during the study period was 10.2% with the highest incidence was in 2011 (13.0%) while the least was in 2009 (5.2%). This finding is relatively low compared to studies by Awe, O. O. et al.[13] in Port Harcourt who recorded an incidence of 21.4%. The study further revealed a steady rise in the incidence of neonatal jaundice for a period of 2009 (5.2%) to 2010 (7.6%) and then peaked at 2011 (13.0%) after which a decline was noted in 2012 where the incidence was 9.5%). This trend may be attributable to the increase in population of in the State as well as possible increase in patronage of orthodox medicine following campaigns on the need for antenatal and post natal care. The need to educate mothers on the risk factors/causes of neonatal jaundice becomes important as a means of reducing the burden from this condition on neonates. For the Causes of Neonatal jaundice in Federal Medical Center yenagoa, shows from our finding that prematurity was commonest cause of neonatal jaundice in 45.0% of cases (Table-3). This is followed by infection (18.7%), camphor (16.0%), ABO-incompatibility (7.8%), G-6PD deficiency (7.2%) and other causes (4.3%). A finding similar to previous studies by Ogunlese, T.A. et al.[12], who noted that prematurity, is the commonest cause of neonatal jaundice in developing nations like Nigeria.

Furthermore, for the forms of management. The results from this study (Table-4) shows that about half (47.0%) of the cases are managed by phototherapy and chemotherapy. Phototherapy alone was the next (27.1%). This was followed by a

combination of exchange blood transfusion and phototherapy (24.8%). Exchange blood transfusion alone was the least (1.2%) measure of management employed. This is because management of neonatal jaundice is base on the level of serum bilirubin and in most cases, phototherapy will suffice. However, the need for exchange blood transfusion as well as a combination of exchange blood transfusion and phototherapy is done when the serum bilirubin is very high and phototherapy alone will not be effective in reducing the serum bilirubin to its normal range (i.e. in severe jaundice where serum bilirubin rise is >5mg/dl in 24hours). This finding from this study reveals that more children are managed with exchange blood transfusion when compared to studies by Olusenya B. O. et al.[14] and Olufunmilola O. A.[15] in Abakaliki, South East Nigeria where only 16.9% of the cases are managed with exchange blood transfusion and the others done with phototherapy, chemotherapy or a combination of both. The Outcome of the management as seen in (Table-5) shows that majority (71.7%) of cases of neonatal jaundice were successfully managed and discharged. Although 3.1% of the cases were referred while about a quarter (21.1%) of cases were signed home against medical advice and 4.1% died. A result in consistent with Jonathan .C. Azubuike and Nkanginieme[11] who reported a case fatality of 3.4% in their study in south-west Nigeria.

Conclusion

The occurrence of jaundice in newborns in Ovom FMC, Yenagoa in Bayelsa was relatively high. The need to educate mothers on the causes, clinical presentation and early presentation to hospital for medical intervention was made known to the mothers.

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