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Causes And Management Of Neonatal Jaundice In Almosawi Pediatric Hospital In Nasiryiah City A: Retrospective Study

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Abstract

- Background

Neonatal jaundice is the most common reason for admission in the neonatal period. The yellow coloration of the skin and sclera in newborn with jaundice is the result of accumulation of unconjugated bilirubin. Neonatal physiological jaundice results from simultaneous occurrence of two phenomena, bilirubin production is elevated and hepatic excretory capacity is low (1).The aim of this study is to determine the etiology,severity,risk factors and management of neonatal jaundice.

- **Methods**

A retrospective study was conducted on 100 case_sheets (random sample) to neonates who had jaundice in Almosawi paediatric hospital in Nasiryiah city.The obtained data were analysed and the results were tabulated.

- **Results**

100 case_sheets of neonates who have jaundice were studied.ABO blood group incompatibility were the most common cause of jaundice.Phototherapy is the mainstay of hyperbilirubinemia treatment in neonates.It has resulted in a marked reduction in the need to perform exchange transfusion.

- **Conclusion**

Blood group incompatibility,and unknown causes,are the most common cause of neonatal jaundice .The less common cause is G6pd deficiency.Most of neonates who have jaundice were breast feeding,lowbirth weight and preterm are risk facters.

Keyword: (jaundice; neonatal; Causes)

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Introduction

Hyperbilirubinemia is common and,in most cases,benign problem in neonates.Jaundice is observed during the Ist wk of live in approximatly 60% of term infants and 80%of preterm infants.The yellow color usually result from the accumulation of unconjugated,nonpolar,lipid_soluble bilirubin pigment in the skin (2). unconjucated free bilirubin is neurotoxic and can cause kernicterus(3). Jaundice is usually detectable clinically when the plasma bilirubin exceeds 3mg/dl (4). Severe neonatal jaundice may cause permanent brain injury and hearing loss in infant worldwide,including those born in developed countries.Bilirubin neurotoxicity is due to the effects of unbound unconjugated bilirubin in the central nervous system.The risk of kernicterus depend not only on the total serum bilirubin,but also factors such as the bilirubin-albumin bind capacity,prematurity and other neonatal illnesses (5).The amount and duration of hyperbilirubinemia and the neurodevelopmental age(preterm neonates) at the time of insult exposition is supposed to influence the location of selective brain damage as well as the severity of consequences (6). The history of jaundice is very long and described as a sign of(causeless hatred) in the Babylonian Talmud.There are various ancient references related to jaundice which are presented in Babylonian Talmud,Sumerian Tablets,Ebers Papyrus and in Ancient Ayurveda(the Indian traditional system of medicine).Moreover the work of Hipppcrates(460-370.B.C) also provide reference to jaundice (7).

Background:

Jaundice is still a leading cause of preventable brain damage,physical and mental handicap,and early death among newborns in many communities.Neonatal morbidity and mortality remain very high in the developing countries (8).

The causes of neonatal jaundice are:breastfeeding and underlying health conditions which include hypothyroidism,blood group incompatibility,rhesus factor disease,urinary tract infection,Grigler Najjar syndrome,G6pd deficiency,and sepsis.There is contraversy as to whether breastfeeding increase the incidence of jaundice in the first few days of life (9).

Male sex,high birth weight,breastfeeding,warm air temperature,primparity,skill birth attendance,place of delivery,prolonged labour,oil massage,paternal education,and ethinicity were significant risk factors.Among infants with difficulty feeding,exclusive breastfeeding was a risk factor for neonatal jaundice,whereas exclusive breastfeeding was protective among infants with no report of difficulty feeding (10).

Methods:

This retrospective study was conducted on 100 neonates with diagnosed jaundice at Almosawi hospital in Nasiryia city,between January and December 2018.They were taken as random sample.Data was collected.The neonates were predominantly treated with phototherapy and small minority required exchange transfusion. History include the

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birth weight,brestfeeding,formula feeding,and family history.

Results of investigations including blood group and rh type of mother and neonate,serumm bilirubin levels,c_reactive protein,blood cultur,and G6pd enzyme.

Results:

In our study ABO incompatibility 43% was the most common cause.In nearly 30% the cause was not known.13% of the treated neonates were diagnosed with sepsis.10% had rh incompatibility,(this is severe neonatal jaundice) (11), and 4%G6pd deficincy.Two patients have kernicterus,as in table No.1.The majority of cases 89% treated by phototherapy,11%by blood exchange,table No.2.

Phototherapy is a simple and effective way to reduce bilirubin level.Most term babies have physiological jaundice which responds to a short period of phototherapy,and require no other treatment.A few babies have rapidly rising bilirubin levels which place them at risk of kernicterus (12).It is unclear whether aggressive phototherapy to prevent neurotoxic effects of bilirubin benefits or harm infants with extremely low birth weight(1000g or less) (13).

Aggressive use of phototherapy has decreased the use of the invasive exchange transfusion method,relegating exchange transfusion to only severely emergent cases.Lack of adequate phototherapy and facilities,severity of hyperbilirubinimeia complicated by genetic factors,and system deficit make exchange transfusion a more common treatment in developing countries (14).

An Iranian study in Fars province revealed that the most common causes of sever hyperbilirubinemia were sepsis,blood group incompatibility,G6pd deficincy and unknown (15).

21%of the neonates who required treatment in our study were preterm.Table No.3.Croatian study showed that the neonatal jaundce was associated with lowbirth weight,maternal infection,gestational age and premature rupture of membranes (16).

A study conducted in Asia documented ABO incompatibility and G6pd deficiency as leading causes of neonatal jaundice.G6pd abnormality was found in 12% of the neonates with jaundice in south Iran and 4.2% in Taiwan (17).

The prevalence of neonatal jaundice and risk factors in healthy term neonates at national district hospital in Bloemfontein.A total of 96 mother-infant pairs included in the study.The prevalence of neonatal jaundice was 55.2%,however only 10%of black babies who were diagnosed with jaundice appeared clinically jaundiced.Normal vaginal delivery was only associated with neonatal jaundice.Black races and maternal smoking were not protective against neonatal jaundice as in some other studies (18).

TABLE NO.1 Causes of neonatal jaundiice

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Cause	No.of cases	Kernicterus
ASO incomp	43	1
Others	30	
Sepsis	13	
Rh incomp.	10	1
G6pd def.	4	
Total	100	2

TABLE NO.2 Causes and type of treatment of neonatal jaundice

Cause	Type of treatment	
	Phototherapy	blood exchange(severe)
ABOincomp.	42	1
Others	25	5
Sepsis	12	1
Rh incomp.	8	2
G6pd def.	2	2
Total	89	11

Table No.3 Causes and No.of preterms

Cause	No.of preterms
ABOincom.	10
Others	8
Sepsis	2
Rh incomp.	1
G6pd	-
Total	21

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Discussion

This study sought to identify the possible facters associated with neonatal jaundice.Majority of neonates developed jaundice within 1-3 days with 10% having it at birth.Birth weight and prolonged duration of labour were associated with neonatal jaundice.Mothers had inadequate knowledge of neonatal jaundice.(17)They usually put garlic cloves in beds and use suger water which do not work to get rid of bilirubin (19). Most of neonates with jaundice had low birth weight,compared to those without jaundice(20). Preterm neonates who have concurrent illnesses and physiologic derangement are more vulnerable to bilirubin neurotoxicity.Biliribin related neurotoxicity can result in neonatal death or multisystem acute manifestation and long term impairment including irreversible ethetoid palsy and speech ,visumotor,auditory,and other sensory processing disability (21).

Conclussion

Neonatal jaundice is easily diagnosable,however require quick and on spot treatment.If not treated properly,it leads to kernicterus.Currently the treatment options for neonatal jaundice include phototherapy and exchange transfusions.Lowbirth weight and preterm labour were associated with neonatal jaundice.A more serious form of neonatal was due to Rh incompatibility.

This study conclude that the ABO incompatibility is the most common cause of neonatal jaundice in this hospital.This is followed by other causes,sepsis,Rh incompatibility and G6pd deficiency.Understanding the aetiology and risk factors for neonatal jaundice in our setting helps in prioritizing the group of neonates who require more intensive monitoring for early identification and timely management of this condion.

The majority of the neonates admitted in the hospital were improved at discharge.Therefore early recognition of neonatal hyperbilurubinemian is an important public health concern.

Clinical experience has revealed that mothers have an inadequate understanding of the jaundice and perceive it to be far more serious than it is.

Recommendation

1- It is recommended that the bilirubin level of all babies should be checked before discharge from the hospital,because sometime the healthy term babies develop neonatal jaundice.

2- As phototherapy is a safe effective method for decreasing or preventing the rise of serum unconjugated bilirubin level and reduce the need for exchange transfusion in neonates,we suggest to provide the hospitals with conservative and aggressive phototherapy devises..

3- Rh incompatibility can be prevented by receiving preventive treatment with immunoglobulin which will prevent serious effects.

4- Education on the condition and it's causes should be intensified especially by healthcare

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workers during regular antenatal visit.Causes of neonatal jaundice need to be examined in the routine management of neonates.

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اسباب ومعالجة اليرقان لحديثي الولادة في مستشفى محمد الموسوي للأطفال في مدينة الناصرية : دراسة ارتدادية

د. عبدالرضا عبد حاتم د.حسين علي حمد د. مشعل زوري جبار

الخلاصة

يرقان حديثي الولادة اكثر الاسباب لرقود حديثي الولادة.اصفرار الجلد والصلب الابيض للعين بسبب تجمع البليروبين الغير مقترن.ويرقان حديثي الولادة الفسلجي بسبب زيدة انتاج البليروبين وهبوط قابلية الكبد للافراز.والهدف من هذه الدراسة لتحديد الاسباب والشدة وعوامل الخطورة ومعالجة يرقان حديثي الولادة.

دراسة استعادية لمئة طبلة (نموذج عشوائي) لحديثي الولادة مصابين باليرقان في مستشفى محمد الموسوي للاطفال في الناصرية. جمعت البيانات وحللت ونظمت بجداول. عدم مطابقة مجاميع الدم هي اكثر الاساب لهذا اليرقان.العلاج الضوئي له دور كبير بمعالجة الحالات وقلل بشكل كبير الحاجة لتبديل الدم. حالات كثيرة من اليرقان الولادي غير معروفة السبب،واقل الاسباب هو داء الباقلاء.واكثر المصابين هم رضاعة طبيعية.نقص الوزن والولادة المبكرة هي عوامل خطورة.