

**JAUNDICE IN NEWBORN BABIES IN MOSUL CITY****<sup>1</sup>\*Ali Saleem Ahmed Lulaibi, <sup>2</sup>Saif Nashwan Muayad ALsaati and <sup>3</sup>Ammar Ahmed Abdulhakeem Mhmood**<sup>1</sup>Senor Chief General Doctor B.H.CH.B. Higher Diploma Family Medicine AL. Qayarha Primary Health Care Sector Nineveh Health Directorate Iraq.<sup>2</sup>Senor Chief General Doctor B.H.CH.B. Higher Diploma Family Medicine Talkef Districr / Faydaa PHC.<sup>3</sup>Senor Chief General Doctor B.H.CH.B. Higher Diploma Family Medicine Left Primary Health Care Sector.**\*Corresponding Author: Ali Saleem Ahmed Lulaibi**

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**ABSTRACT**

The present study aimed to investigate the relationship between gestational age and increased incidence of jaundice congenital and its relationship to other causes leading to increased incidence of infection and their negative impact on children's health. The study included follow-up (80) The situation of newborn children of both sexes aged (1 day to 10 days) After the cases were divided into groups according to gender, gestational age and weight, where comparison is made between these groups of the results of this study there is high significant ( $p < 0.05$ ) in the incidence of jaundice congenital in males 67.5% when compared with females 32.5%, was, also found high significant ( $p < 0.05$ ) in concentration of total bilirubin in males, but zero, the differences of the moral ( $p > 0.05$ ) in pcv, weight and gestational age in patients with congenital jaundice in both sexes. a significant increase ( $p < 0.05$ ) in the incidence of neonatal jaundice between the groups was gestational age and gaze at the gestational age of at least 36 weeks (52.5%), which included each of the two groups (28-31) and (32-35) as reached (12.5% and 40%) when compared with gestational age (36-39) hit (47.5%), respectively, has shown a rise was not significant in the concentration of total bilirubin in gestational age (32-35) when compared with gestational age (28-31) and (36-39) hit ( $4.07 \pm 18.13$ ), ( $3.64 \pm 15.12$ ) and ( $3.12 \pm 15.81$ ) respectively, no significant differences in pcv for both groups, respectively While statistical analysis pointed to the existence of a significant reduction in weight for the same gestational age groups was above the gestational age (28-31), amounting to ( $0.45 \pm 1.92$ ) when compared with gestational age (32-35) and (36-39), where reached values ( $0.48 \pm 2.62$ ) and ( $0.58 \pm 2.78$ ), respectively, but it is not clear any significant difference between the last two sets. The results indicated the relationship between weight and the incidence of jaundice congenital to the presence of high moral in the incidence of jaundice congenital between the totals of weight increase was evident in the group at least ( $3 > \text{kg}$ ), which included each of the two groups (1 - 1.9) and (2 - 2.9) it reached (15% and 48.75%) when compared with the group ( $3 >$ ) where was (36.25%), as of total bilirubin between the totals of the weights and was above the group (2 - 2.9), amounting to ( $4.14 \pm 17.20$ ) when compared with the group (1 - 1.9) and ( $3 >$ ), which amounted to ( $3.40 \pm 15.40$ ) and ( $3.28 \pm 16.44$ ), respectively, did not show any significant differences in the pcv of the groups themselves.

**INTRODUCTION**

Congenital jaundice is an increase in the level of a substance in the baby's blood called bilirubin.

Naturally produced by the human body as a result of the breakdown of red blood cells, then the liver picks up and excretes them through Stool, and this type of jaundice usually occurs between the second and fifth days, and it can be said that neonatal jaundice.<sup>[1]</sup>

It is a natural phenomenon that recurs frequently and continuously and appears in more than 42% of newborns during the first week of pregnancy.

Their lives and then gradually and automatically disappear without any other symptoms such as heat and vomiting.<sup>[2]</sup> Almost all newborns have elevated bilirubin values during the week.

The first age, but the case goes undiagnosed because of the slight increase in bilirubin values, and a large percentage is infected of newborns with yellowing in the color of the skin and eyes so that the parents or the doctor can distinguish it by examining the child.<sup>[3]</sup>

And it is what is called jaundice or Abu yolk.<sup>[4]</sup> The occurrence of jaundice is the result of several causes.

The most important of them is: an increase in the child's hemoglobin values, and when the child's body tries to get rid of the amount of blood cells.

The extra red blood cells are caused by the breakdown of bilirubin, which is responsible for jaundice, in addition to the immaturity of the liver in the child.

So that the liver cannot get rid of the excess amount of bilirubin in the blood as well as increase the production and absorption of bilirubin.

At this early stage in a child's life, which leads to the appearance of yellow color in the skin and eyes and the first thing that appears. the yellow color on the face of the child, then the chest, abdomen, and finally the feet does not constitute the continuation of jaundice,<sup>[5]</sup> A real danger in itself, but the problem may be in its cause, unlike the case in severely elevated bilirubin values. (Figure 2,3)

Some figure of a healthy baby an another with jaundice.



Figure 2:

Baby with jaundice  
www.myolab.com



Figure 3:



Figure 3  
Healthy baby  
www.altibbi.com

In the first ten days, when the brain can be affected, jaundice becomes very serious and leads to the accumulation of this substance in the body.

The child's brain and injury to a serious condition called kernicterus,<sup>[6]</sup> With mental retardation and motor paralysis and the values of bilirubin vary, at which jaundice becomes. Dangerous to the child, according to the weight and age of the child, and the presence of complex diseases related to the liver and ducts.<sup>[7]</sup>

Biliary tract. Therefore, this study aimed to know the changes in the rate of jaundice Congenital and its

relationship to health and physiological causes of the newborn child during pregnancy and after birth.

There are several types, namely: Physiologic jaundice and Breast milk jaundice Pathologic jaundice hemolysis and jaundice,<sup>[8]</sup>

## MATERIALS AND WORKING METHODS

### 1-Preparing sick conditions

This study was conducted from multiple Hospital in Nineveh Governorate from the beginning of the month January 2023 until the end of March 2023, and the study included a follow-up of (82) cases of newborns For both

sexes (males 45 and females 26) aged (1 to 12 days) with premature neonatal jaundice and those lying in the home preterm division. Knowing that children do not suffer from any disease such as liver disease, severe anemia, and others

## 2-Type of cases according to gestational age as follows

**A- The first group:** Newborns with a gestational age of less than 36 weeks, and their number is 42, and this, in turn, was divided into Two secondary groups included: newborns with a gestational age ranging from (28-31 weeks), their number was 10 newborns Births with a gestational age ranging between (32-35) their number 32. And includes newborns with a gestational age of (36-39) weeks and their number 38.

**B- According to Weight to:-** Newborns with a weight of less than <3 kg and included two categories (1-1.9) and (2-2.9) their number 51 and newborns with a weight of more than >3 kg their number 29.

**3- Collecting blood samples:** Capillary blood samples were drawn using special medical syringes. Each sample was divided into two sets of tubes: placing blood in tubes containing an anticoagulant to perform the tests for measuring blood masses.<sup>[9]</sup>

The samples were placed in tubes free of anticoagulant and left at laboratory temperature for a period of time (15-20) minutes, then centrifuged at 3000 revolutions per minute for the purpose of separating the blood from its components Separation of serum for tests for measuring total bilirubin.<sup>[10]</sup>

## 4- Work methods: included

**A- Calculating the gestational age:** The gestational age was calculated by asking the mother about the date of the last menstrual period and the first day of childbirth, then Extract the gestational age according to the following equation:

**Gestational age = 12 days of the menstrual cycle + first day of Situation. (Sadler, 1990)**

## B- Laboratory tests

**B-1-** Measuring the percentage of total bilirubin, a blood sample was drawn on the first day of the onset of jaundice. By means of a capillary tube with open ends, then one end was closed using a rubber stopper. Then it was separated using centrifuge at 5000 rpm for five minutes for obtaining blood serum.

Bilirubin meter at a factor value of 10.1 the device whistles using distilled water, the device is read on Concentration which is the final focus of the model in units.<sup>[11]</sup> mg/dl

**B-2 - Hematopoietic measurement** Packet cell volume Capillary tubes and a Hematocrit micro centrifuge were used to measure the percentage of hematopoietic mass (Brown, 1976). The examination process was carried out

by making the blood flow into the tube. capillary by capillary action, leaving approximately 15 mm of the tube unfilled and then closing one of the tubes.<sup>[12]</sup>

Its ends were covered with artificial clay, and then placed in the microcentral device, and the device was run for 5 minutes at a speed of 11000. Cycle / minute, then extract the tubes from the device and read the percentage of blood volume P.C.V % using a ruler. Hematocrit reader pcv.

## RESULTS AND DISCUSSION

1- Effect of sex on total bilirubin concentration, hematocrit, weight and gestational age in patients with jaundice. The results of the statistical analysis in Table (1) indicated a significant increase ( $p < 0.05$ ) in the concentration of Bilirubin in males when compared with females reached ( $3.19 \pm 18.75$  and ( $4.63 \pm 15.42$ ), respectively. As The results showed in the same table that there were no significant differences ( $p > 0.05$ ) in blood mass, weight and age.

Pregnancy in both sexes. Figure (1) shows an increase in the incidence of congenital jaundice in males 67.5% compared to with females. (32.5 %) the blood of a fetus while in its mother's womb contains numbers of red blood cells that reach about 6.5 million red blood cells/mm<sup>3</sup>, which contain a type of hemoglobin called fetal hemoglobin f type where up to 90% is the normal hemoglobin of the fetus, after birth this type is replaced by hemoglobin.

In the blood of adults, in addition to this, this number of corpuscles decreases significantly, up to about 4.5 million red blood cells / mm<sup>3</sup>, through a rise in the rate of red blood cell breakdown and the outcome of that process an increase in the concentration of bilirubin, causing congenital jaundice; The gender of the newborn may have an effect on increasing the incidence of infection Jaundice, as males suffer from jaundice more than females, and this is due to the number of red blood cells in males more Of which in females, the current results are consistent with what was indicated by (Behrman et al (2014) and (Clemons (2016).

## 2- Effect of gestational age on total bilirubin concentration, hematocrit and weight in patients with congenital jaundice

The results in Figure (2) showed an increase in the incidence of congenital jaundice among the gestational age groups, and it was the highest in The gestational age of less than 36 weeks, which included both groups (28-31) and (32-35), which amounted to (12.5% and 40%). when compared with the gestational age (36-39) where it reached (47.5%). The results in the table (2) showed that there are.

Significant increase ( $p < 0.05$ ) in total bilirubin concentration at gestational age (32-35) when compared with gestational age (28-31) and (36-39)., (respectively

4.07 ± 18.13) (and 3.64 ± 15.12), (3.12 ± 15.81) which amounted to As shown in Figure (3), Table (2) shows that there is no significant difference ( $p > 0.05$ ) in the blood stack for both groups, respectively, while the same table indicates a significant decrease in weight for the same age groups Pregnancy where it was above gestational age (28-31) when it was (0.45 ± 1.92) when compared with gestational age (32-35) and (36-39), where the values were (0.48 ± 2.62) and (0.58 ± 2.78), respectively, but there was no significant difference between.

The last two groups, Fig (4), result from the accumulation of unconjugated bilirubin, which is elevated in it. Excessive levels of bilirubin in the blood, which may lead to brain paralysis, hearing loss and some problems.

It is necessary to distinguish between pathological jaundice and unsatisfactory jaundice known as physiological jaundice Which goes away on its own, but the problem lies when bilirubin concentrations rise more than 14 mg/dL (Ahdab, (2007), especially in children who are born prematurely, as stated in the results of the current study, which showed the presence of.

An increase in the total bilirubin concentration ranged between (15.12- 18.13) mg/dl, and the reason may be attributed to These children are born with suffocation from lack of oxygen due to lack or lack of surfactant Due to immaturity of the pulmonary alveoli (small air sacs), and lack of oxygen cause an increase in.

The lysis of red blood cells.<sup>[13]</sup> Also, the incomplete maturity of the digestive system, especially The liver, where its ability to process excessive bilirubin is limited, as well as an increase in the size and number of blood cells red erythrocytes and increase their breakdown and production of bilirubin and consequently a decrease in the liver's ability to absorb free bilirubin from.

The plasma is converted to bound bilirubin, due to a lack of activity of the hepatic enzyme glucuronyl transferase.

In addition, the turnover of bilirubin in the small intestine is very slow due to the lack of activity of the natural flora.

**Table (1): Effect of sex on total bilirubin concentration, hematocrit, weight and gestational age in patients with jaundice neonatal.**

Sex	SD ± Mean				
	Number	Total bilirubin mg/dl	Blood stack %	Weight / kg	Gestational age (week)
Male	54	3.19 ± 18.75	0.08 ± 55	0.63 ± 2.72	35.55 ± 2.18
Female	26	15.42 ± 4.63	0.06 ± 56	2.58 ± 0.51	35.15 ± 3.29

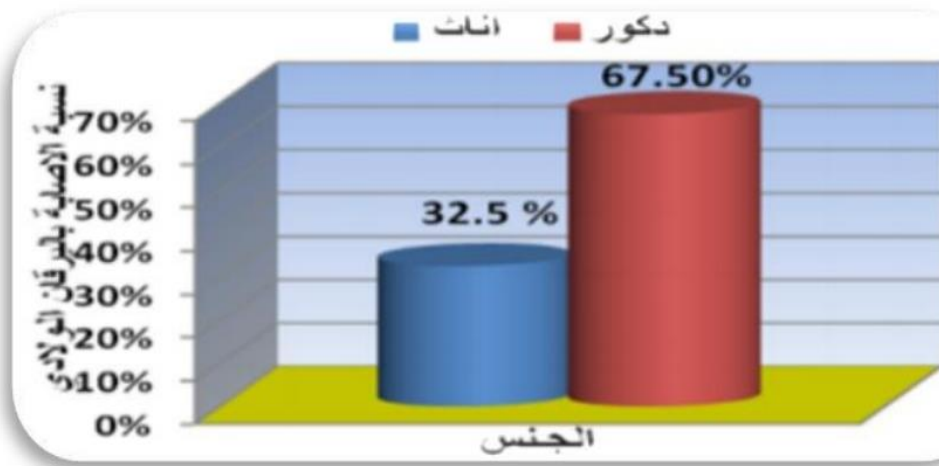
This result is consistent with what was stated indicated that there is A relationship between the incidence of congenital jaundice and the increase in the rate of premature births.<sup>[14]</sup> it was consistent with the results of this study It showed a significant increase in the incidence of congenital jaundice in children born at the age of Pregnancy less than 35 weeks, the reason for this increase is attributed to an increase in the rate of premature births, which amounted to 52.2% as In Figure (2), the causes are due to weak structure, general exhaustion, and nutritional deficiencies due to social status.

And the economic and lack of health conditions and the incidence of internal diseases such as high blood pressure and albuminuria Diseases of the glands, kidneys, etc..., taking drugs, repeated abortions, and the occurrence of pregnancy immediately after the abortion.<sup>[15]</sup>

### 3- Effect of weight on total bilirubin concentration and hematocrit in patients with congenital jaundice

The results in Figure (5) showed an increase in the incidence of congenital jaundice among weight groups, and it was higher in For the group less than (<3 kg), which included both groups (1-1.9) and (2-2.9), it amounted to (15% and 48.75%). when compared with the group (>3), where it amounted to (36.25%), as the results indicated in the table (3)

There was a significant increase ( $p < 0.05$ ) in the concentration of total bilirubin, and it was the highest in the group (2-2.9), as it reached (4.14 ± 17.20) when compared with the group (1 -1.9) and, (> 3), where it reached (3.40 ± 15.40) and (3.28 ± 16.44), respectively, and the table did not show any significant differences ( $p > 0.05$ ) in the blood mass of the same groups. Studies have indicated that newborns with low birth weight are more susceptible to infection congenital jaundice, where the incidence of was 63.75%. These results came Similar to the results of this study, which showed a significant increase in the concentration of total bilirubin and the incidence of infection neonatal jaundice in children with a weight less than 2.9 kg as shown in the figure.<sup>[16]</sup>

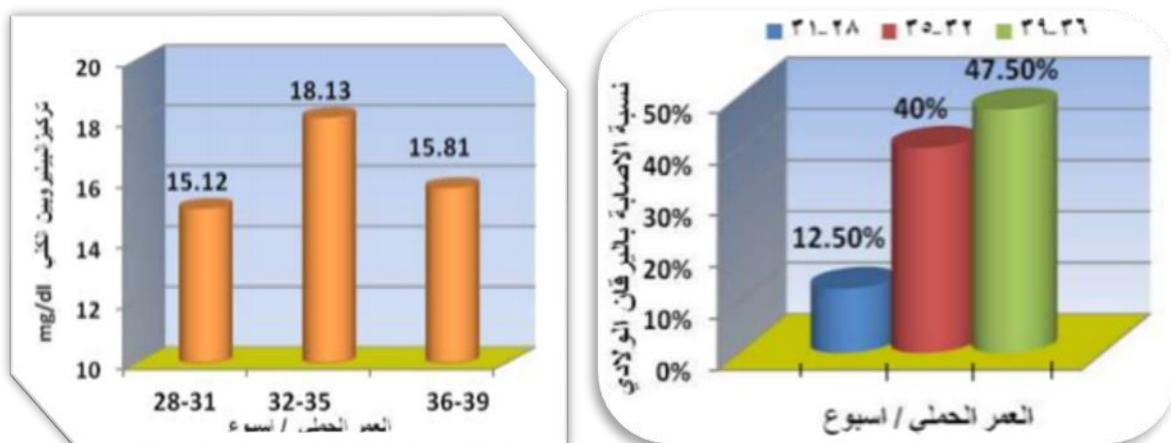


Significant difference between the groups below the level of significance ( $p < 0.05$ ) Figure (1) the effect of sex on the incidence of congenital jaundice

Table (2): Effect of gestational age on total bilirubin concentration, hematocrit and weight in patients with congenital jaundice.

Standards	SD ± Mean			number
	total bilirubin mg/dl	blood stack %	Weight kg	
gestational age				
28-31 week	3.64 ± 15.12	6.45 ± 57.00	0.45 ± 1.92	10
32-35 week	4.07 ± 18.13	6.38 ± 58.41	0.48 ± 2.62	32
36-39 week	3.12 ± 15.81	8.66 ± 52.84	0.58 ± 2.78	38

Significant difference between the groups below the level of significance



( $P < 0.05$ )

Table (3): Effect of weight on total bilirubin concentration and hematocrit in people with congenital jaundice

Weight kg	SD ± Mean		blood stack %	number
	Standards	total bilirubin mg/dl		
1-1.9		3.40 ± 15.40	7.46 ± 53.17	12
2-2.9		4.14 ± 17.20	8.37 ± 56.15	39
<3		3.28 ± 16.44	7.60 ± 55.83	29

Significant difference between the groups below the level of significance ( $P < 0.05$ )

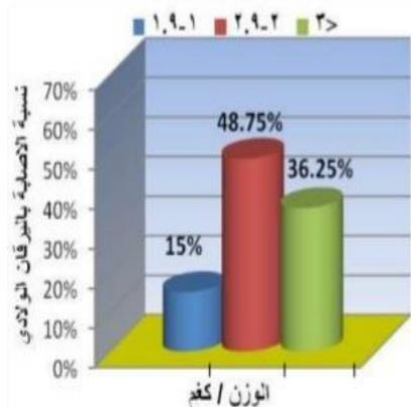


Figure (5)  
Effect of weight on the incidence of congenital jaundice

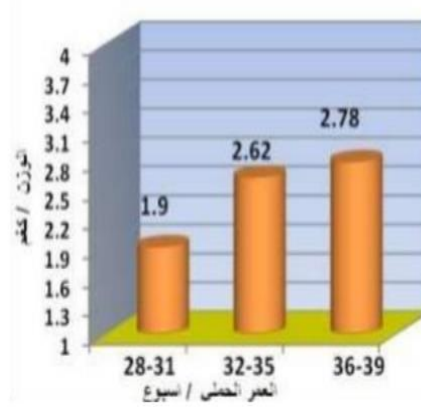


Figure (4)  
Effect of gestational age on weight in patients with jaundice neonatal

The proportion of premature births in which the newborn suffers from immaturity and a decrease in the concentration of ligandin protein.

In the blood, it is a binding protein that transports bilirubin to liver cells and a decrease in In the activity of the hepatic enzyme, which causes an increase in the concentration of bilirubin in the blood, and the reason may be due to factors related to the mother.

Such as smoking, diabetes, use of certain medications, or delayed removal or clamping of the umbilical cord to the newborn, which increases infection rates).

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