# Detection of Neonatal Jaundice among the Newborn Using Kramer ' s Criteria

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## Abstract

**Introduction:** Jaundice is one of the most common conditions which need medical attention in newborn babies.

Neonatal Jaundice. So that invasive investigations can be avoided and early management can be done and complications can be prevented.

### Objectives

- To determine the incidence of Neonatal Jaundice by Kramer's criteria among Newborns in the Postnatal ward.
- To assess the Risk factors that leads to Neonatal Jaundice
- To associate the Incidence of Neonatal jaundice with the selected demographic variables and the risk factors [6,7].

### Assumption

It is assumed that association of some risk factors for incidence of Neonatal Jaundice [6,7].

## Methodology

A Study with 80 Newborns were selected from selected hospital at Puducherry for the study. The study approach used in the study was Quantitative Research Approach, research design was Non experimental Research Design, research variable was Neonatal jaundice and purposive sampling technique was used to select the sample for this study. Instrument used for study was structured interview schedule and Kramer's criteria to assess the bilirubin level, which is a standardized tool given by Indian Academy of Pediatrics, April 2016. Infants who were term neonates and who weighs ≥ 2000 g were selected for the study. Infants who were admitted to the neonatal intensive care unit or special care unit and who receives more than 48hr of intravenous antibiotics for concern for sepsis and Jaundiced neonates that came only on OPD Basis were excluded from the study [7,8].

The researcher obtained Formal permission from the concerned authority. The researcher introduced herself and rapport was established with the participant's mother. A brief introduction about the procedure and purpose of the study was given .Oral and written consent was obtained from each samples and reassurance was provided that the data collected would be kept confident. After the pilot study, the researcher conducted the main study at selected hospitals in Puducherry. Data was collected from the mother and baby pairs.

| | | |
|---|---|---|
| **Occupation** | | |
| Self-employee | 2 | 2.5 |
| Private | 7 | 8.8 |
| Government | 1 | 1.2 |
| Homemaker | 70 | 87.5 |
| Any other | 0 | 0 |
| **Income** | | |
| Up to Rs.900 | 16 | 20 |
| Rs.900-Rs.1500 | 16 | 20 |
| Rs.1501-Rs.3000 | 46 | 57.5 |
| >Rs.3000 | 2 | 2.5 |
| **Age of The Baby** | | |
| <24 hr | 71 | 88.8 |
| 24 -2 day | 7 | 8.2 |
| 2-3 day | 1 | 1.2 |
| 3-4 day | 1 | 1.2 |
| **Sex of The Baby** | | |
| Male | 37 | 46.2 |
| Female | 43 | 53.8 |
| **Birth Weight** | | |
| <2.5 kg | 2 | 2.5 |
| 2.5k g | 5 | 6.2 |
| 2.6 -3 kg | 36 | 45 |
| >3.5 kg | 37 | 46.2 |
| **Weeks of gestation** | | |
| 36-38 wks | 0 | 0 |
| 39 wks | 12 | 15 |
| 40 wks | 68 | 85 |
| >40 wks | 0 | 0 |

**Table 2:** Distribution of demographic variables of the subjects among the newborns in the postnatal ward.

Table 3 shows that 58(72.5%) were frst Gravida, 59(73.8%) were frst parity [11,12].

| Obstetric Variables | Frequency | Percentage |
|---|---|---|
| **Gravida** | | |
| 1 | 58 | 72.5 |
| 2 | 20 | 25 |
| 3 | 1 | 1.2 |
| >3 | 1 | 1.2 |
| **Parity** | | |
| 1 | 59 | 73.8 |
| 2 | 21 | 26.2 |
| 3 | 0 | 0 |
| 4 | 0 | 0 |

**Table 3:** Distribution of obstetric variables of the subjects among the newborns in the postnatal ward.

Table 4 shows that, Most of the newborns 15(18.8%) had risk factor associated with not initiation of Breast feed within 24hrs, whereas 14(17.5%) had risk factor associated with not giving colostrums at birth, Only 1(1%) newborn had risk factor of Previous history of Jaundice in siblings. Most of the Mothers 7(8.8%) had risk factor associated with GDM, whereas 7(8.8%) had risk factor associated with GHTN, 2(2.5%) Mothers had hypothyroidism as risk factor [12,13].

| Risk factors of neonatal jaundice | Frequency | Percentage |
|---|---|---|
| Previous history of jaundice in siblings | 1 | 1.20% |
| Colostrum not given at birth | 14 | 17.50% |
| GDM | 7 | 8.80% |
| GHTN | 7 | 8.80% |
| Hypothyroidism during pregnancy | 2 | 2.50% |

**Table 4:** Percentage distribution of risk factors of Neonatal jaundice among the Newborn N=80.

Table 5 depicts that 60(75%) had serum Bilirubin <4mg/dl, 8(10%) had serum bilirubin in the range of 4-8 mg/dl, 7(8.75) were in the range of 5-12 mg/dl and 5(6.25%) were in the range of 8-16 mg/dl. Out of 80 subjects, 20 subjects had neonatal jaundice, total incidence rate was 25%.

| Serum bilirubin | Frequency | Percentage |
|---|---|---|
| <4mg/dl | 60 | 75.0 |
| 4–8 mg/dl (Zone 1) | 8 | 10.0 |
| 5–12 mg/dl (Zone 2) | 7 | 8.75 |
| 8–16 mg/dl (Zone 3) | 5 | 6.25 |
| 11–18 mg/dl (Zone 4) | 0 | 0 |
| >15 mg/dl (Zone 5) | 0 | 0 |

**Table 5:** Frequency and Percentage distribution of Incidence of Neonatal jaundice among Newborns in the Postnatal ward N=80.

Te Table 6 shows colostrum intake had shown statistically signifcant association with level of serum bilirubin among Newborns in the Postnatal ward [14].

| Neonate demographic variables | 4-8 mg/dl | | 5-12 mg/dl | | 8-16 mg/dl | | Chi-square value |
|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | |
| Colostrum given at birth | - | - | - | - | - | - | $\chi^2$=6.190<br>d.f=2<br>p=0.045(S*) |
| Given | 1 | 5 | 4 | 20 | 0 | 0 | |
| Not given | 7 | 35 | 3 | 15 | 5 | 25 | |
| *p<0.05 , S-Significant, N.S-Not Significant | | | | | | | |

**Table 6:** Association of level of serum bilirubin among Newborns with Neonatal Jaundice in the Postnatal ward with their selected demographic and obstetric variables and Risk factors N=20.

## Discussion

In this study, the percentage distribution of incidence of Neonatal

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## Recommendations

- A similar study can be conducted on a large sample size for the generalization of findings
- A study can be conducted on effectiveness of Kramer's criteria, Trancutaneous bilirubinometer, Icterometer for identification of neonatal jaundice in comparison for future studies
- A study can be conducted on caesarean section newborns and other modes of delivery too.
- A similar study can be done with large sample in different setting and different populations like preterm babies.
- A similar study can be conducted in community setting for early detection of Neonatal jaundice.

## Conflict of Interest

Author declares that they have no conflict of interest. Informed consent was obtained from all patients and patient identity not disclosed.

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