

Infant readmission was related to early discharge, young gestational age, and breast feeding

Maisels MJ, Kring E. *Length of stay, jaundice, and hospital readmission. Pediatrics* 1998 Jun;101:995-8.

Question

Is a newborn infant's age at discharge associated with hospital readmission for hyperbilirubinaemia?

Design

Case control study.

Setting

A large community hospital associated with a university in Detroit, Michigan, USA.

Participants

In a 6 year period, 127 newborn infants were readmitted to hospital because of hyperbilirubinaemia within 14 days of discharge from the well baby nursery. Control participants were 127 infants discharged in the same year who were not readmitted.

Assessment of risk factors

Maternal type 1 diabetes mellitus, maternal smoking, gestational age at birth (≤ 36 , 36-37, >37-38, >38-39, >39-40, and ≥ 40 wk), jaundice before discharge, breast feeding status, male sex, rupture of membranes ≥ 18 hours before birth, meconium, and hospital length of stay (<48, 48-72, and ≥ 72 h).

Main outcome measure

Hospital readmission for hyperbilirubinaemia within 14 days of discharge.

Main results

An increased risk of hospital readmission for hyperbilirubinaemia was associated with gestational age ≤ 36 weeks ($p < 0.001$), >36-37 weeks ($p < 0.001$), or >37-38 weeks ($p < 0.001$); jaundice in nursery ($p < 0.001$); breast feeding ($p < 0.001$); initial length of stay 48-72 hours ($p < 0.005$) or <48 hours ($p = 0.027$); and male sex ($p = 0.007$). A decreased risk of readmission was associated with gestation ≥ 40 weeks

($p = 0.001$), initial length of stay ≥ 72 hours ($p = 0.009$), no meconium ($p = 0.006$), or rupture of membranes ≥ 18 hours before birth ($p = 0.004$).

Conclusions

An increased risk of hospital readmission for hyperbilirubinaemia was associated with gestational age ≤ 38 weeks, jaundice before discharge, breast feeding, initial length of stay <72 hours, and male sex. A decreased risk was associated with gestation ≥ 40 weeks, initial length of stay ≥ 72 hours, no meconium, or rupture of membranes ≥ 18 hours before birth.

Risk factors for infant hospital readmission for hyperbilirubinaemia

Variables	Study group (%)	Control group (%)	Odds ratio (95% CI)
Gestational age ≤ 36 weeks	9.5	1.6	13.2 (2.7 to 64.6)
Jaundice in nursery	90.6	55.9	7.8 (3.4 to 18.0)
Gestational age >36-37 weeks	16.5	4.7	7.7 (2.7 to 22.0)
Gestational age >37-38 weeks	28.4	8.7	7.2 (3.1 to 17.0)
Breast feeding	89.0	63.8	4.2 (1.8 to 9.9)
Length of stay 48-72 hours	44.1	33.1	3.2 (1.4 to 7.1)
Male sex	74.8	49.6	2.9 (1.5 to 5.7)
Length of stay <48 hours	47.2	46.5	2.4 (1.1 to 5.3)
Gestational age ≥ 40 weeks	15.8	34.7	0.4 (0.2 to 0.7)
Initial length of stay ≥ 72 hours	8.7	20.5	0.4 (0.2 to 0.8)
No meconium	3.2	22.8	0.2 (0.04 to 0.6)
Rupture of membranes ≥ 18 hours before birth	1.6	7.1	0.08 (0.01 to 0.5)

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Commentary

The consequences of early discharge of new mothers and their infants are complex. Shorter maternity stays are now common because of consumer demand to demedicalise birth and to reduce medical costs.¹ Follow up in the community is piecemeal depending on the jurisdiction of practice. It is for this reason that the results of the study by Maisels and Kring must be reviewed by practitioners with an understanding of their own practice.

Concern has led to retrospective chart review studies to ascertain the relative risk of readmission of newborn infants. Jaundice has consistently been the primary diagnosis for readmission.^{2,3} Although legislation in the US may prevent further reductions in length of maternity stays,

the primary issue for healthcare providers is identifying the infants most at risk and taking appropriate action. Identification of infants at risk (ie, infants <37 wk gestation, jaundiced before discharge, and breast fed) allows healthcare professionals to direct follow up in the community. One cannot overstate the importance of timely intervention in hospital to ensure that breast feeding methods are appropriate and that adequate information about child care is provided.

The design of the study was appropriate to assess the risk of readmission. Case and control infants were matched and all readmissions were included in the study. The authors acknowledged that retrospective studies rely on accurate data collection

and missing data can be a problem. In jurisdictions where all infants are visited regularly in the community during their first few days of life, the study serves as a reminder to providers to assess the infants most at risk from early discharge. For practitioners who work in areas where postnatal visits are not routine, it is important to refer families to suitable follow up care.

Jenny Medves, RN, RGN
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1 Braveman P, Kessel W, Egarter S, et al. *JAMA* 1997;278:334-6.

2 Seidman DS, Stevenson DK, Ergaz A, et al. *Pediatrics* 1995;96:727-9.

3 Liu LL, Clemens CJ, Shay DK, et al. *JAMA* 1997 23;278:293-8.



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