

Changes in Heart Rate in the First Minutes after Birth.

Dawson J.A., Kamlin C.O., Wong C., te Pas A.B., Vento M., Cole T.J., Donath S.M., Hooper S.B., Davis P.G., Morley C.J. *Arch Dis Child Fetal Neonatal Ed.* 2010 May;95(3):F177-81.

Introduction

The normal range of heart rate (HR) in the first minutes after birth has not been defined.

Objective: To describe the HR changes of healthy newborn infants in the delivery room (DR) detected by pulse oximetry.

Study Design

All inborn infants were eligible and included if a member of the research team attended the birth. Infants were excluded if they received any form of medical intervention in the DR including supplemental oxygen, or respiratory support. HR was measured using a pulse oximeter (PO) with the sensor applied to the right hand or wrist immediately after birth. PO data (oxygen saturation, HR and signal quality) were downloaded every 2 sec and analyzed only when the signal had no alarm messages (low IQ signal, low perfusion, sensor off, ambient light).

Results

Data from 468 infants with 61 650 data points were included. Infants had a mean (range) gestational age of 38 (25-42) weeks and birth weight 2970 (625-5135) g. At 1 min the median (IQR) HR was 96 (65-127) beats per min (bpm) rising at 2 min and 5 min to 139 (110-166) bpm and 163 (146-175) bpm respectively. In preterm infants, the HR rose more slowly than term infants.

Conclusions

The median HR was <100 bpm at 1 min after birth. After 2 min it was uncommon to have a HR <100 bpm. In preterm infants and those born by caesarean section the HR rose more slowly than term vaginal births.