

# Follow up Processes of Newborn Babies in Delivery Room: Two-Year Statistical Evaluation

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## ABSTRACT:

Follow up processes of newborn babies in delivery room: two-year statistical evaluation

**Objective:** Epidemiologic examination of the results of postnatal follow-up of infants born at our hospital.

**Material and Method:** All the babies born within two years (2014-2015) in our hospital were included in the study. Babies' information, physical examination findings, interventions used in the delivery room, follow-up results and existing diseases were recorded daily. The obtained data were compared with the national data of our country.

**Results:** A total of 7246 newborns were born from 7172 pregnancies, 7175 (99.02%) live births and 71 (0.98%) stillbirths within the specified period. Rate of cesarean section, multiple pregnancy and major anomaly were 41.66%, 1.03% (n: 74) and 0.77% (n: 55) respectively. According to the gestational age, preterm delivery (<37 weeks) was 13.7% (n: 995), term delivery (38-42 weeks) was 84.8% (n: 6143) and postterm delivery (>42 weeks) was 1.5% (n: 108). Distribution of infants according to birth weight was determined as; <1000 grams 0.8% (n: 61), 1000-1500 grams 1.1% (n: 79), 1500-2500 grams 8.4% (n: 611), 2500-4000 84.5% (n: 6119) and > 4000 grams 5.2% (n: 376). The SGA rate in infants was 6.7%, the AGA rate was 79.8% and the LGA rate was 13.5%. It was found that 3.1% of babies were followed in newborn unit, 8.2% were admitted to neonatal intensive care unit and 1.4% were referred to other hospitals. In delivery room, babies were given oxygen at a rate of 7.5%, in 2.4% infants were used T-piece resuscitation support and 1.04% of babies were subjected to intubation and/or chest compression.

**Conclusion:** In our country, there are not enough studies about newborn babies' short-term follow-up at delivery room. The preterm delivery rates and cesarean birth rates in our hospital were found to be below the country values but higher than the developed countries.

**Keywords:** Delivery room, follow up, neonate

## ÖZET:

Doğumhanede yenidoğan bebeklerin izlem süreçleri: İki yıllık istatistiksel değerlendirme

**Amaç:** Hastanemizde doğan bebeklerin doğum sonrası izlem sonuçlarının epidemiyolojik açıdan incelenmesi.

**Gereç ve Yöntem:** Çalışmaya belirlenen iki yıl içerisinde (2014-2015 yılları) hastanemizde doğan tüm bebekler dahil edildi. Bebeklerin bilgileri, muayene bulguları, doğumhanede uygulanan girişimler, izlem sonuçları ve mevcut hastalıkları günlük olarak kaydedildi. Elde edilen veriler ülkemiz verileri ile karşılaştırıldı.

**Bulgular:** Belirlenen süre içerisinde 7172 gebelikten, 7175'i (%99.02) canlı doğum ve 71'i (%0.98) ölü doğum olmak üzere toplam 7246 bebek doğmuştu. Sezaryen ile doğum sıklığı %41.66, çoğul gebelik sıklığı %1.03 (n: 74), majör anomali sıklığı %0.77 (n: 55) olarak belirlendi. Gebelik süresine göre prematüre doğum (<37 hafta) %13.7 (n: 995), term doğum (38-42 hafta) %84.8 (n: 6143) ve postmatüre doğum (>42 hafta) %1.5 (n: 108) şeklindeydi. Bebeklerin doğum ağırlığına göre dağılımı: < 1000 gram %0.8 (n: 61), 1000-1500 gram %1.1 (n: 79), 1500 - 2500 gram %8.4 (n: 611), 2500-4000 gramı %84.5 (n: 6119) ve 4000 gram üstü %5.2 (n: 376) olduğu saptandı. Bebeklerde SGA oranı %6.7, AGA oranı %79.8 ve LGA oranı %13.5 idi. Bebeklerin %3.1'inin yenidoğan ünitesinde takip edildiği, %8.2'sini yenidoğan yoğun bakım ünitesine yatırıldığı ve %1.4'ünün başka hastanelere sevk edildiği belirlendi. Bebeklere doğumhanede %7.5 oranında oksijen verildiği, %2.4 oranında T parça canlandırıcı desteği verildiği ve %1.04 bebeğe entübasyon ve/veya göğüs kompresyonu uygulandığı belirlendi.

**Sonuç:** Ülkemizde yenidoğan bebeklerin doğumhanedeki kısa süreli izlemi ile ilgili yeterli çalışma bulunmamaktadır. Hastanemizde prematüre doğum oranları ve sezaryen doğum oranlarının ülkemiz değerlerinin altında ancak gelişmiş ülke değerlerinden yüksek olduğu belirlendi.

**Anahtar kelimeler:** Doğum odası, izlem, yenidoğan

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## INTRODUCTION

Newborn infant mortality rates, which are used as criteria for determining the level of development of countries, are gradually decreasing in positive direction in our country. According to Turkey Demographic and Health Survey (TDHS) 2013 statistics, the newborn mortality rate in our country is reported as 6.3-7 in 1000 (1,2). An important factor in lowering this rate to lower levels is the correct and proper follow-up of babies in the delivery room in the first hours of life. The first hours after birth are the most stressful period of life for all the newborns. During the first hours of life, significant physiological changes occur in infants and adaptation to extrauterine life can be achieved through these physiological changes. In 90% of infants, adaptation can be accomplished successfully without any need for support, while 10% of babies need life support and 1% of them need advanced life support (3). For this reason, the whole team working at the delivery room should be educated, experienced and certified about the life support of the newborn. We have not been able to find any adequate information about the issues that have been identified in the delivery room about problems detected in postnatal births, the leading initiatives made and the initial evaluation results in our country. In our study, we aimed to evaluate the demographic characteristics of the babies born during the period of two years in our hospital, to evaluate the findings detected at the delivery room and to establish a scientific data base.

## MATERYAL AND METOD

Newborn health services in our hospital are provided in two departments. Neonatal and Obstetrics Unit; in this section, a total of 5 beds are provided, where the intervention is necessary but there are no serious problems and a short follow-up can be made and the treatment of infants who develop jaundice beside the mother can be planned. Newborn Intensive Care Unit; a total of 28 beds are provided in this section, with 19 beds at III. Level and 9 beds at II. Level. Babies who have serious problems after birth and who need long-term follow-

up are admitted to this department.

All babies born in our hospital within the determined years (1 January 2014 to 31 December 2015) were included in the study. The babies born at home and brought to the delivery birth room for evaluation were excluded from the study. Retrospectively, the demographic information (birth weight, gender, etc.), initial examination findings, interventions performed at delivery room, follow-up results, hospitalization information, referral information and identified diseases were recorded from the delivery room infants' files. Infants with anencephaly, encephalocele, meningomyelocele, cleft palate, congenital diaphragmatic hernia, cyanotic congenital heart defect, hydrocephalus, omphalocele, gastroschisis were included in the major anomaly group. When the birth weights were evaluated according to the gestational weeks, the infants were classified according to the Fenton growth charts as SGA (Small for the gestational age), AGA (Appropriate for gestational age) and LGA (Large for gestational age) (4). The obtained data were determined as "ratio" with the demographic statistics.

## RESULTS

A total of 7246 babies were born from 7172 pregnancies, 7175 (99.02%) live births and 71 (0.98%) stillbirths within the determined period of 2 years. The study was enrolled with 7175 live born babies and stillbirths were excluded from statistics. Among live births, multiple birth frequency was determined as 1.03% (n: 74), in vitro fertilization frequency as 0.24% (n: 17) and major anomaly frequency as 0.77% (n: 55). Delivery types were as follows: normal vaginal delivery 58.3% (n: 4182), vacuum-assisted delivery 0.20% (n: 15) and Caesarean section 41.5% (n: 2978). When the rates of babies according to their birth weight is examined; below 1000 grams rate was 0.85% (n: 61), 1000-1500 grams was 1.1% (n: 79), 1500-2500 grams was 8.52% (n: 611), 2500-4000 grams was 84.86% (n: 6089) and over 4000 grams was found to be 4.67% (n: 335). Gender distribution of infants was as follows: 49.3% (n:3538) were female and 50.7% (n:

3637) were male. Distribution of gestational age was; premature (<37 weeks) 13.59% (n: 975), term (37-41 weeks) 85.18% (n: 6112) and postmature ( $\geq$  42 weeks) 1.23% (n: 88). When birth weights were evaluated according to gestational weeks, the rates were as follows: SGA 6.59% (n: 473), AGA 80.08% (n: 5746) and LGA 13.33% (n: 956).

In the initial examination and follow-up of the babies in the delivery room, the follow up and treatment of 3.1% (n: 222) infants were planned at the Neonatal and Obstetrics Unit and the infants at stable condition at the end of treatment were given to their mothers. Distribution of diagnosis of infants (n: 222) followed up at the Newborn Gynecology Unit was as follows: poor feeding/inadequate breastfeeding in 118 infants, hyperbilirubinemia in 57 infants, respiratory failure/transient tachypnea of the newborn (TTN) in 43 infants, possible clinical sepsis in 16 infants and other diagnoses in 20 infants.

8.2% (n: 588) of infants were detected to be admitted to neonatal intensive care unit and found to be in need of treatment. The preliminary diagnosis of infants hospitalized in Neonatal Intensive Care Unit (n: 588) were as follows: Prematurity in 187 infants, prematurity + respiratory distress syndrome (RDS) in 126 infants, TTN in 102 infants, major anomalies in 55 infants, early hyperbilirubinemia in 23 infants, perinatal asphyxia in 17 infants, early clinical sepsis in 17 infants and other causes in 61 infants.

It was determined that infants were referred to other hospitals by 1.4% (n: 102) due to lack of beds in our hospital. The preliminary diagnosis of infants referred to the external centers were as follows: TTN in 54 infants, prematurity in 21 infants, prematurity+RDS in 14 infants, early clinical sepsis in 3 infants, and other causes in 10 infants.

When the interventions performed at the delivery room were evaluated, 6459 (89.1%) babies were given regular care, 540 (7.5%) babies were given oxygen, 171 babies (2.4%) were given respiratory support with T-piece and 76 babies had intubation and/or chest compression applied (stillbirth counts were added to this statistics). The distribution of data determined according to years is presented in Table-1.

## DISCUSSION

The aim of the study was to evaluate the data obtained during the short term follow-up period of infants at the delivery room with the first examination findings and interventions performed during the first stages of life.

Cesarean birth rates have increased in the last ten years in our country, but the increasing rates have been prevented with the measures taken. Caesarean section rate is reported to be 48% in Turkey and this rate is reported to be higher in developed regions of the country (2). Cesarean delivery rate was reported as 53.2% in Istanbul in general (2). In a hospital such as ours, which is a training and research hospital in Istanbul, the cesarean delivery rate is given as 40.1% (5). While the rate of cesarean section was lower in our study, compared to the rates reported for Istanbul province, high risk rates of pregnancies admitted for labor due to the fact that our hospital being a reference point in the region where it is located, may explain the partial higher rates of cesarean section.

Premature birth rates vary between countries. In the United States it is reported to be 12-13%, whereas in European countries it is reported to be 5-9% (6). A comprehensive epidemiological study regarding this subject has not been established in our country. In a study conducted in the province of Istanbul, it was reported that 2.9% of live births were born below 1500 grams of birth weight and 6.2% were over 4000 grams (7). While TDHS reported a rate of 11% premature births in 2009, in a regional study, it has been reported that the premature birth rate could be as high as 17.3% (8,9). Determining the frequency of births according to birth weight or according to gestational age during the study will benefit the country's database. There has been no detailed information on both the intervention rates and on the referral rates of babies in the literature survey. For this reason, we think that the rates of interventions and the reasons for referrals contribute to the establishment of a healthy database.

The inadequacy of epidemiological data in health studies negatively affects the efforts to improve the problems identified. For this reason, we think that it would be useful to present the characteristics that

**Table-1: Demographic and clinical characteristics of the study group**

Demographic Feature		Time (Year)		
		2014	2015	Total, n (%)
Number of Births	Live birth	3579	3596	7175 (99.02)
	Stillbirth	31	40	71 (0.98)
	Total	3610	3636	7246 (100)
Feature of Birth	Multiple pregnancy	35	39	74 (1.03)
	Pregnancy with an assisted reproduction technique	10	7	17 (0.24)
	Major anomaly	33	22	55 (0.77)
Route of Delivery	Normal vaginal delivery	2035	2147	4182 (58.3)
	Vacuum-assisted delivery	14	1	15 (0.2)
	Cesarean delivery	1486	1492	2978 (41.5)
Birth weight	<1000 gram	28	33	61 (0.85)
	1000-1500 gram	39	40	79 (1.1)
	1500-2500 gram	292	319	611 (8.52)
	2500-4000 gram	3050	3039	6089 (84.86)
	>4000 g	154	181	335 (4.67)
Gender	Female	1751	1787	3538 (49.3)
	Male	1812	1825	3637 (50.7)
Gestational week	Preterm (<37 weeks)	499	476	975 (13.59)
	Term (37-41 weeks)	3018	3094	6112 (85.18)
	Postterm (≥ 42 weeks)	52	36	88 (1.23)
According to birth weight	SGA	273	200	473 (6.59)
	AGA	2845	2901	5746 (80.08)
	LGA	451	505	956 (13.33)
Number of hospitalized patients	NOU	127	95	222 (3.1)
	NICU	257	331	588 (8.2)
	Referral to external hospital	66	36	102 (1.4)
Need for postpartum support*	Regular care	3282	3177	6459 (89.1)
	Oxygen	207	333	540 (7.5)
	T-piece support	80	91	171 (2.4)
	Intubation/cardiac massage	35	41	76 (1.04)

\*The need for postpartum support includes the rates of stillbirths, NOU: Neonatal Obstetrics Unit, NICU: Neonatal Intensive Care Unit

we found in the follow-up of babies shortly after birth. It was thought that although our cesarean delivery rate was lower than our country values in

our hospital, it was higher than the developed countries' level and this situation could be explained by the fact that our hospital being a reference center.

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