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Evaluation of Newborns Born in a Training and Research Hospital in Mogadishu,Somalia, Africa

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ABSTRACT

Background: This study aimed to determine the clinical characteristics of the newborns born in the hospital.
Methods: This study included 1199 newborns born in Turkey Recep Tayyip Erdoğan Training and Research Hospital, Mogadishu, Somalia, Africa, in 2018. The gender, birth weight and height, delivery method, health status, mother's age, as well as gravida and parity conditions were retrospectively obtained from the records of the delivery clinic.
Results: Out of 1199 newborns, 610 neonates were male (50.9%). The mean birth weight of the newborns was 2915.7±907.5 gr, and the mean birth height was 47.6±4.6 cm. Moreover, 66.6% of the newborns were born by normal vaginal delivery, and 91.8% were born alive. The mean age of the mothers was 26.3±5.4 years, and the mean values of gravida and parity were 3.8±2.5 and 2.9±2.1, respectively.
Conclusion: There is a dearth of research regarding the evaluation of newborns in Somalia, Africa. Therefore, it is hoped that the results of this study will contribute to form standards for the follow-up of growth and development of infants living in this region and to improvematernal and child health.

Keywords: Birth height, Birth weight, Newborn, Somalia

Introduction

It is important to conduct anthropometric studies in the neonatal and childhood periods. The periodic measurement of the anthropometric variables in different populations and regions of the country reflects the changes in the nutrition, as well as the growth and development status of the children. Moreover, it is a reliable and effective method to assesssocial health(1-3). All maternal, fetal, placental, and environmental factors may affectfetal growth. Ethnic and genetic characteristics also affectfetal growth. Furthermore, geographical location has an important role among the environmental factors (4-6).

Many studies have emphasized the need for the growth curves specific to the population and the anthropometric data periodically updated on a local basis (7). Although the World Health Organization (WHO) recommends a single international growth standard for developing countries,each country should create growth curves reflecting their genetic characteristics to evaluate thenational growth and development (8, 9).

The present study aimed to determine the clinical characteristics of the newborns born in a training and research hospital in Mogadishu, Somali, Africa. It also attempted to share the data with those in the literature since no studies were conducted in this regard in this country and region. It is hoped that the results contribute to forming standards for the follow-up of growth and development of babies, reducing the maternal-neonatal mortality and morbidity, and forming health policies on the improvement of the maternal and neonatal health.

Methods

This study was conducted in Turkey Recep Tayyip Erdoğan Education and Research Hospital, Mogadishu, Somalia, Africa. The records of

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newborns born in the hospital in 2018 were analyzed retrospectively.Moreover, the gender, birth weight and height, delivery method, health status, mother's age, as well as gravida and parity conditions obtained from the records of the delivery clinic.

The medical records of a total of 1300 newborns were analyzed in this study. On the other hand, those with incomplete records were excluded from the study. It is worth mentioning that no other exclusion criteria were determined. Finally, medical records of 1199 newborns were included in the study.

The gender, birth weight, birth method, and health status of the newborns were determined totally and monthly. In addition, the mean±SD values of the birth weight and height of the newborns, the mothers' age, gravida, and parity were determined. It was investigated whether there wasa significant difference between males and females in terms of birth weight and height.According to the birth weight, the newborns were divided into three groups of <500, 500-2499, and ≥2500 gr, and their annual numbers and percentages were determined. Moreover, mothers were divided into three groups of <18 years of age, 18-34 years, and ≥35 years, and their annual numbers and percentages were determined. Subsequently, it was investigated whether there wasa significant difference among these three groups in terms of newborn's gender, birth weight, birth method, and health status.

The study protocol was approved by the Ethics Committee of Turkey Recep Tayyip Erdoğan Education and Research Hospital, Mogadishu, Somalia, Africa. It should be mentioned that this study was conducted in accordance with the Declaration of Helsinki.

TheKolmogorov-Smirnov and Shapiro-Wilk tests were used in order to determine the distribution of the data. Moreover, the categorical variables were demonstrated as number (n) and percentage (%). The comparison of the intergroup numeric data was performed using independent samples t-test and Mann-Whitney U test. Furthermore, the Chi-square test and linear-by-linear association test were used to compare the categorical variables. The data were analyzed in SPSS software (version. 22; IBM SPSS, Chicago, USA). A p-value less than 0.05 was considered statistically significant.

Results

In this study, 50.9% of the 1199 newborns

Table 1. Clinical characteristics of the newborns and their mothers

	n	%
Gender		
Male	610	50.9
Female	589	49.1
Birth weight (gr)	26	2.2
<500	259	21.6
500-2499	914	76.2
≥2500		
Birth method		
NVD	799	66.6
CS	400	33.4
Health status		
Alive	1101	91.8
Dead	98	8.2
Mother age (year)		
<18	11	0.9
18-34	1088	90.8
≥35	100	8.3

NVD: Normal vaginal delivery, CS: Cesarean section

were male. In terms of birth weight, 2.2%,21.6%, and 76.2% of the newborns were <500, 500-2499, and ≥2500 gr, respectively. Regarding the birth method, 66.6% and 33.4% of the newborns were born by vaginal delivery and cesarean section, respectively. With respect to the health status, 91.8% of them were born alive and 8.2% were born dead. Considering the stillbirth, 100%, 21.2%, and 1.9% of the babies born <500, 500-2499, and≥ 2500 gr were stillborn, respectively. In terms of mother's age, 0.9% of the mothers were <18 years,90.8% of them were 18-34 years, and 8.3% of the cases were≥35 years. Table 1 summarizes the clinical characteristics of the newborns and their mothers.

The monthly distribution of the births showed that the majority of the births happened in October (n=146), and the least number of births happened in February (n=68). Table 2 tabulates the clinical characteristics of the newborns concerning their gender, birth method, and health status based on months.

The mean birth weight and height of the newborns were 2915.7±907.5 gr and 47.6±4.6 cm, respectively. Moreover, the mean age of the mothers was 26.3±5.4 years, and the mean values of gravida and parity were 3.8±2.5 and 2.9±2.1, respectively. Table 3 shows the clinical characteristics of the newborns and their mothers.

There was no significant difference between males and females in terms of birth weights (P=0.063). However, the height of the male neonates was significantly higher than that of the

Table 2. Clinical characteristics of the newborns based on months

	Gender		Birth method		Health status		Total
	Male	Female	NVD	CS	Alive	Dead	n
	n	n	n	n	n	n	
January	34	39	33	40	64	9	73
February	37	31	49	19	63	5	68
March	50	41	58	33	81	10	91
April	52	48	72	28	93	7	100
May	34	44	39	39	73	5	78
June	48	32	50	30	74	6	80
July	48	45	67	26	85	8	93
August	62	35	73	24	88	9	97
September	70	68	99	39	127	11	138
October	76	70	102	44	131	15	146
November	52	68	84	36	112	8	120
December	47	68	73	42	110	5	115

NVD: Normal vaginal delivery, CS: Cesarean section

Table 3. Mean values of clinical characteristics of the newborns and their mothers

	Mean±SD	Minimum	Maximum
Birth weight (gr)	2915.7±907.5	250	6500
Birth height (cm)	47.6±4.6	25	58
Mother age (year)	26.3±5.4	16	50
Mother gravida	3.8±2,5	1	15
Mother parity	2.9±2.1	0	14

Table 4. Differences between gendersregarding anthropometric measurements of newborns

	Male (n=610) Mean±SD	Female (n=589) Mean±SD	P
Birth weight (gr)	2966.8±898.9	2862.7±914.0	0.063
Birth height (cm)	48.0±4.4	47.2±4.8	<0.001

Table 5. Comparison of some clinical characteristics of the newborns with mother age

	<18 years (n=11) n	18-34 years (n=1088) n	≥ 35 years (n=100) n	P
Gender				
Male	5	550	55	0.356
Female	6	538	45	
Birth weight (gr)				
<500	0	22	4	0.322
500-2499	2	235	22	
≥2500	9	831	74	
Birth method				
NVD	7	727	65	0.786
CS	4	361	35	
Health status				
Alive	10	998	93	0.667
Dead	1	90	7	

NVD:Normal vaginal delivery, CS: Cesarean section

female ones(P<0.001, Table 4).

Additionally, no significant difference was found among the maternal age groups in terms of gender, birth weight, birth method, and health status of the newborns (all of them P > 0.05). Table 5 shows the comparison of the maternal age groups and these clinical characteristics.

Discussion

The evaluation of growth and development in children is important for raising healthy generations. Therefore, some anthropometric measurements are performed for these evaluations. Moreover, standards are formed in these measurements for the growth and development follow-up. As the environmental factors, socio-economic, ethnic, and genetic characteristics affect growth and development, it is appropriate that each country or region determines its standards (2,8,10). This study aimed to

contribute to forming standards for the growth and development follow-up, especially Somalia and the region under study, and improving maternal and child health.

In a study conducted byElshibly et al.on Sudanese newborns, 51.4% of the neonates were male(11). Moreover, Singh et al.performed a study on terminfants in America and determined that 55.8% of the newborns of African-American mothers were male; additionally, 52.2% of the infants of the Caucasian mothers were male (12). In astudy conducted by Kurtoğlu et al. on Turkish newborns, 52.5% of the neonates were male(13). In the present study, it was determined that 50.9% of the infants were male. The studies indicatethatthe birth rate of male babies was higher than that of the female ones if the percentage values were different regardless of race, region, and development level.

Elshibly et al. reported in the same study that the mean birth weight of the Sudanese newborns was 3131.7±538.9 gr (11). In the same line, Singh et al. estimated the mean birth weight of the neonates of African-American mothers at 3200±500 gr, and the mean birth weight of the babies of Caucasian mothers was obtained at 3360±500 gr (12).

According to a study conducted by Yajnik et al. on term newborns, the mean birth weight of the Indian babies born in the rural areas of India was 2666±355 gr, and the mean birth weight of the white Caucasian babies born in the city centers in England was 3494±483 gr (14). Neyzi et al. reported the mean birth weight of the Turkish babies as 3252±504 gr in their study (15). In the present study, the mean birth weight of the newborns was estimated at 2915.7±907.5 gr. The studies indicate that there were differences among races in terms of birth weight, and the weights of babies were higher in the developed region, developing region, and city center.

Elshibly et al.estimated the mean birth height of the Sudanese newborns at 49.3±2.9 cm (11). Moreover, in a study conducted by Singh et al., the mean birth height of the infants of African-American mothers was obtained at 48.6±2.2 cm, and the mean birth height of the babies of Caucasian mothers was 50.0±2.0 cm (12). Furthermore, Yajnik et al. determined the mean birth height of the Indian babies born in the rural areas of India as 47.7±2.0 cm, and the mean birth height of the white Caucasian neonates born in the city center in England as 49.8±1.9 cm (14). Similarly, according to the results of a study conducted by Neyzi et al., the mean birth height of

Turkish newborns was 49.9±1.8 cm (15).In the present study, the mean birth height of the newborns was determined at 47.6±4.6 cm. These studies indicate that there were differences between the races in terms of birth height, and the heights of babies were higher in the developed region, developing region, and city center.

Regarding mother age, in a study conducted by Elshibly et al., the mean age of the Sudanese mothers was 27.0±5.4 years (11). Moreover, Singh et al. determined the mean age of African-American mothers at 28.5±5.3 years, and the mean age of the Caucasian mothers was 29.5±5.6 years (12). In the same vein, Yajnik et al. found that the mean age of the Indian mothers in the rural areas of India was 21.4±3.6 years, and the mean age of the white Caucasian mothers in the city center in England was 26.8±5.1 years (14). Furthermore, the Turkish Statistical Institute has reported the maternal mean age of 28.7 years in 2017(16). In the present study, the maternal mean age was found to be 26.3±5.4 years.The studies indicate that there were differences between races in terms of maternal mean age, and the maternal mean age was lower in the underdeveloped regions or rural areas.

Conclusion

No data were found about Somalia in the 2018 African Health Statistics Atlas of WHO (17). This necessitates the need for collecting health data about Somalia, Africa. Therefore, it is necessary to determine the clinical characteristics of the infants and mothers, as well as the factors affecting them regularly at the region or country level. It is hoped that the obtained data will contribute to determining the current neonatal and obstetric approaches, forming standards for growth and development follow-up, and improving maternal and child health.Further studies are suggested to obtain more health data and standardize these data.

Acknowledgments

None.

Conflicts of interest

There are no conflicts of interest regarding the publication of the study.

Author Contributions

U.C. designed the study, Y-A.A collected the data, U.C. and Y-A.A analyzed the data, U.C. supervised the study, performed the statistical analysis, and wrote the manuscript. All authors

reviewed and approved the final manuscript.

Financial support and sponsorship

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