



Hasta güvenliği perspektifinden bebek tuzlama geleneği

The tradition of baby salting in perspective of patient safety

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ÖZET

Giriş: Tuzlama ülkemizde yenidoğan döneminde gözlenen geleneksel uygulamalardandır. Folklor kaynaklarında başta Anadolu'da olmak üzere Türkler arasında yaygın olduğu belirtilmiştir. Temel olarak bebeklerin büyüdülerinde kokmayacağı inancına yönelik yapılmaktadır. Bununla birlikte uygulama sağlık sorunlarına yol açabilmektedir. **Materyal ve Metot:** Hastanemizde üç aylık dönemde çocuk kliniğimize gelen bebek, çocuk ve adolesanların ailelerinden tuzlama uygulamasıyla ilgili veriler elde edildi. Yüzyüze görüşme yoluyla elde edilen 584 dosyanın verileri incelendi. **Bulgular:** Vakaların %67 (n=391)'si tuzlanmış, %33 (n:193)'ü tuzlanmamıştı. Tuzlama yapılanlarda en küçük yaş 2 gün, en büyük yaş 15,71 yıl, ortalama yaş 4,41 yıl idi. Tuzlananlarda erkek oranı %49,62 (n=194), kız oranı %50,38 (n=197) olup değerler benzerdi. Tuzlanmayanlarda erkek oranı %50,26 (n=97), kız oranı ise %49,74 (n=96) idi. Tuzlama yapılan vakaların %27 (n=104)'sinde günü hatırlanmıyor, %11 (n=42) göbeği düşünce yapılmış. Tuzlama zamanı ilk doğduğu günden en fazla 90 güne değişiyor, ortalama ise 19,31. gün idi. Tuzlananlar grubunda sezaryen doğum oranı %62 (n=241), normal doğum oranı %38 (n=150) idi. Tuzlanmayanlar grubunda sezaryen doğum oranı %65 (n=126), normal doğum oranı %35 (n=67) olup benzer değerlerde idi. **Sonuç:** Bebek tuzlama hala yaygın olarak yapılan geleneksel uygulamalardandır. Uygulamanın sağlık sorunlarına yol açması olasıdır. Sağlık çalışanları konuyla ilgili bilgilendirilmeli, sağlık kurumlarında ailelere önleme eğitimleri verilmelidir.

ABSTRACT

Introduction: Salting is among traditional practices confronted during the neonatal period in our country. In Folk resources, it is reported to be common among Turks, particularly in Anatolia. It is done basically in regard to the belief that babies will not stink when they grow up. However, the practice may lead to health problems. **Material and Method:** Data from families of babies, children and adolescents, who admitted to our department of pediatrics of our hospital during the first three-month period, concerning practice of salting were obtained. Data of 584 files that obtained by face-to-face interviewing were examined. **Results:** Of the cases; 67% (n=391) were salted, 33% (n=193) were not salted. In those who were salted; least age was 2 days, highest age was 15.71 years and the mean age was 4.41 years. In those who were salted; male ratio was 49.62% (n=194) and female ratio was 50.38% (n=197), the values were similar (p=0,884). In those who were not salted; male ratio was 50.26 (n=97) and female ratio was 49.74 (n=96). Of the cases who were salted; in 27% (n=104) the day was not remembered and in 11% (n=42) it was performed after falling off of the umbilical cord. Time of salting were varying up to at most postnatal 90 days, the mean was 19.31 ± 14,54th days. **Conclusion:** Baby salting is still among commonly performed traditional practices. The practice is likely to lead to health problems. Healthcare professionals should be informed on this issue and in health institutions, families should be trained for prevention.

INTRODUCTION

Salting is washing or direct scrubbing of a newborn baby's body(1). Salting is performed generally in order to prevent stinking of a baby's sweat when s/he grows up among Turks in Anatolia (1-3). In some regions, it is also performed in order to prevent breath odour, to prevent miliaria, to not develop a rash or to heal rashes (2, 4, 5).

There are also investigators who suggested that this practice was performed with the intent of magic-spell (6, 7).

Among Kazakh Turks, it is believed that inflammation on skins of children who were salted would heal more readily (1).

Among Turkish Cypriots, it is performed in order to prevent stinking of a child and for thickening of his/her skin (8).

Also, the aim of the practice is reported with expressions including "prevention of stinking of sweat", "disinfection", "prevention of diaper rash", "to let him/her have stronger bones" and "it is usual to do so" (2, 4, 5, 9). They are salted in Antalya Serik yoruks in order to prevent him "to be a chatterbox" (10).

Salting has been reported to be performed in different application times such as after child is born (1, 11), after his/her umbilical cord is cut (2, 6), after s/he is brought back from hospital (2), after cord cut and naming (7), on his/her second day, tenth day (2) and for forty days.

The process of salting is performed by washing with salty water or scrubbing whole body with salt. (6) Also, honey (2, 6, 11), sugar (2, 6), egg yolk (12), clove (2) and leaves of some plants may be added on the salt (1).

The procedure is generally performed by a midwife (8), the notable of a village (1) or family elders.

After a baby's umbilical cord falls off, s/he is washed under water, then the whole body is coated with salt, some minutes are awaited and soaked with water (13).

After process of salting, relatives of the baby or the neighbours are offered a dish called "salt" or "duz" dish (2, 13).

Studies regarding the salting are generally performed by folk researchers. The aspect of the practice that interests physicians is health problems it may lead to.

Yercen and colleagues reported convulsion and death due to salting in a 30-day old baby in İzmir in 1993 (14).

Peker E. and colleagues reported Hyponatremia-induced dehydration, convulsion and developmental delay due to salting in 10 newborn babies from Van province. 2 of these cases deceased (15).

Again, Fournier gangrene-like condition was observed in the scrotum after salting in a 39-week old baby (16).

Bucak and colleagues reported that in the etiology of a newborn admitted with widespread bullous lesions, absence of sucking, and dehydration was salting (17).

Considering that the skin of a newborn baby is sensitive, salting may lead to dehydration, as well as pain, redness and loss of skin integrity (18).

Studies concerning the frequency of the practice have also been conducted.

In the survey conducted by Ayaz S and colleagues, which they performed with 121 mothers face-to-face, they determined that 40% of mothers salted their babies (19).

MATERIAL AND METHOD

Ethics committee approval for this study was obtained (Pamukkale University Ethics Committee, 18.04.2017/06). Our hospital is a 30-bed secondary healthcare institution servicing in the city centre of Denizli Province. Two gynaecologists and one

paediatrician are employed. An average of 3 babies is born daily. In the department of paediatrics, however, an average of 250-300 new patients is recorded monthly.

Anamnesis notes of paediatric patients are recorded on electronic medium. In 2016 it was observed that practice of salting was performed in patients that admitted. Thereupon, since January of 2017, investigation line concerning salting has been added as a standard to the anamnesis template on the electronic registration system.

In this template, whether salting is performed or not and, if performed, on which day, by whom, for what and how it is performed were investigated. Questions in the questionnaire were filled through asking by a paediatrician and medical secretary.

The obtained results were compared with literature data.

Statistical analysis

Descriptive statistics for continuous variables were expressed as mean, standard deviation, and minimum and maximum values, while they were expressed as numbers and percentages for categorical variables. One-Sample t-test used to compare one group's average value to a single number. Qualitative variables were assessed by Chi-square test. The results were considered to be statistically significant when the p value was less than 0.05. The data were analyzed using the SPSS® Statistics Subscription for Mac OS.

RESULTS

Total number of files which were investigated was 595. Of these; information in 584 files was sufficient. Information in 11 files could not be obtained because of the fact that s/he was brought to hospital by an individual other than a parent or it was an emergent case. 0-19 age population of Denizli for 2016 year is 215.761. A representative reliability at 95% confidence interval with a margin of error of 0.81% was estimated with 584 files.

Of the children; 67% (n=391) were salted and 33% (n:193) were not salted. 35% (n=67) of those who were not salted were babies born in our hospital and babies of families which were trained during the postnatal period.

In the study group, the youngest baby was 0-day old, the oldest adolescent was 15.71 years old and mean age was 3.603.80 years.

Of the cases which were salted; the day was not remembered in 27% (n=104) and it was performed

when baby's umbilical cord fell off in 11% (n=42). A time of falling off of the umbilical cord was considered to be a mean of 8.5 days.(20) Time of salting was varying between the first day to 90th day, whereas the mean was determined to be 19.31±14.54 th days. In those who were salted; the youngest baby was 2-day old, the oldest adolescent was 15.71 years old and the mean age was 4.41±3.90 years old.

In those who were salted; male ratio was 49.62% (n=194), female ratio was 50.38% (n=197) and, hence, the values were similar. There was no statistical difference between male and female groups (Chi-Square Tests=0.021; p= 0.884) (Table 1).

All of the anamneses were obtained from the mothers. Among children, how the practice was performed was not remembered in 54% (n=213) and in 46% (n=178), however, how it was performed was remembered.

In those who were not salted, the youngest was newborn, the oldest adolescent was 15 years old and the mean age was 2.05±2.99 years. In those who were not salted; male ratio was 50.26% (n=97) and female ratio, however, was 49.74% (n=96).

In the study group, the caesarean delivery ratio was 63% (n=367) and vaginal delivery ratio was 37% (n=217). In the group of those who were salted, the caesarean delivery ratio was 62% (n=241) and vaginal delivery ratio was 38% (n=150). In the group of those who were not salted, the caesarean delivery ratio was 65% (n=126) and vaginal delivery ratio was 35% (n=67). There is no significance for the salting ratio between caesarean and vaginal delivery (Chi-Square Tests=0.736; p= 0.391)(Table 2).

It was expressed that the salting was generally performed by maternal grandmother (n=8), paternal grandmother (n=5), maternal and paternal grandmothers (n=4),

neighbours (n=3), mother (n=3), paternal aunt, sister-in-law and relatives.

The process of salting was performed "to prevent stinking of sweat" in all of the cases.

The indispensable fundamental substance used for this practice was salt (n=178). Salty Water (n=57), Honey (n=20), Clove (n=14), Spices (n=6), Ready-to-use kits bought from herbal shops (n=5), Henna (n=3), Butter (n=3), Myrti (n=3), Rose (n=3), Fragrant Herbs (n=2), Fragrance (n=2), Molasses (n=2), Laurel (n=2), Sugar (n=1), Sugar Candy (n=1), Thymus (n=1) and Stone (n=1) were also recorded as other materials used (Table 3).

For the ready-to-use kit, samples were obtained from herb shops (Figure 1-Figure 2); There were Sea Salt, Folium Myrti, Lavender, Clove Powder and sugar candy.

Fundamental ways of practice were recorded as "washed with salty water (n=53)", "Awaited in salt and then washed", "Awaited in salty water", "Bathed, poured salt all over the body before drying and awaited for a period of time (between 5 minutes and 6 hours), his/her mouth was applied salt and then washed (n=60)", "Firstly molasses was applied and then salt was poured on, honey and butter were applied on his/her mouth", "S/he was washed with salty water every day until s/he was 40-day old", "S/he was washed with salty water every other day, until 40th day passed", "Honey and milk were added to and mixed in the ready-to-use material bought from a herbal shop and then applied to body" (Table 4). During the study period, a 20-day old baby was hospitalized in a neonatal intensive care unit with diagnosis of post-salting high temperature and dehydration.

Table 1: Salting rates comparison; male vs female.

	Ratio	Male	Female	Chi-square	Male vs Female
Salted	67% (n=391)	49.62% (n=194)	50.38% (n=197)	Chi-Square Tests=0.021	no statistical difference (p=0.884)
Not salted	33% (n:193)	50.26% (n=97)	49.74% (n=96)		
Total	100% (n=584)				

Table 2: Salting rates comparison; caesarean vs vaginal delivery.

	Ratio	Caesarean delivery	Vaginal delivery	Chi-Square	Caesarean vs Vaginal delivery
Salted	67% (n=391)	62% (n=241)	38% (n=150)	Chi-Square Tests=0.736	no statistical difference (p=0.391)
Not salted	33% (n:193)	65% (n=126)	35% (n=67)		
Total	100% (n=584)	63% (n=367)	37% (n=217)		

Table 3: Materials used for the practice in our study.

Material	n
Salt	178
Salty Water	57
Honey	20
Clove	14
Spices	6
Ready-to-use kits	5
Henna	3
Butter	3
Myrti	3
Rose	3
Fragrant Herbs	2
Fragrance	2
Molasses	2
Laurel	2
Sugar	1
Sugar Candy	1
Thymus	1
Stone	1



Figure 1: Salting kit sold in herbal shops.



Figure 2: The kit bought from another herbal shop; Salt, ground clove, candy sugar, ground myrti.

Table 4: Fundamental ways of the practice in our study.

Method of Application	Number
Washed with salty water	53
Awaited in salt and then washed	1
Awaited in salty water	1
Bathed, poured salt all over the body before drying and awaited for a period of time (between 5 minutes and 6 hours), his/her mouth was applied salt and then washed	60
Firstly molasses was applied and then salt was poured on, honey and butter were applied on his/her mouth	1
S/he was washed with salty water every day until s/he was 40-day old	1
S/he was washed with salty water every other day, until 40 th day passed	1
Honey and milk were added to and mixed in the ready-to-use material bought from a herbal shop and then applied to body	1

DISCUSSION

Our study demonstrates that the tradition of salting is still extensively performed nowadays.

Previous studies were generally studies which were performed via bedside questionnaires or face-to-face interviews (1, 2, 6-8, 11-13, 18, 21, 22).

In the survey studies conducted by Ayaz and colleagues with 121 mothers, they determined ratio of the salting as 40% in Ankara. In a study conducted with 15-49 year

old women in Tokat Province, the practice of salting was reported to be 64% (23). In a study conducted with 45 women in Mersin province, ratio of salting was determined to be 86.5% (24). In a study conducted with 150 women in Ödemiş (İzmir), the ratio of salting was reported to be 67.3% (3). Existence of this practice was reported in Tekirdağ region, as well (25). Baby-salting was determined to be 31.5% in Trabzon Region, 17.5% in Nevşehir, 47.3% in Gaziantep, 32% in Şanlıurfa and 11.7% in Diyarbakır (4, 5, 26-28). Comparison of the

cities in which a study on salting was conducted is presented in table 5.

Our findings indicate that the practice is intensive in our province with 67%. The salting rate was found to be significantly higher in our province compared to other cities average (44.66%) (One-Sample t-test; $p=0.000$). It is observed that the proportion of infant salting is increased to 75% if the educated parents are excluded from the study.

As it is seen in table 5, the practice exists in each region of our country. Although the number of subjects is low, Mersin province is seen as the highest salting region with 86.5%. When we look geographically, it is observed that salting to infants is being done in the eastern, western, north, south and middle of our country. Our study is the second rank after Nevşehir ($n=1484$) in terms of number of subjects ($n=584$).

Gender ratio is close to each other in babies who were salted ($m=49.62\%$, $f=50.38\%$) and not salted ($m=50.26\%$, $f=49.74\%$). This, in turn, indicates that parents do not have gender discrimination in performing this tradition.

In the group of those who were salted; ratio of Caesarean delivery was 62% ($n=241$) and ratio of vaginal delivery was 38% ($n=150$). In the group of those who were not salted; the ratio of Caesarean delivery was 65% ($n=126$) and the ratio of vaginal delivery was 35% ($n=67$), the values were similar. Type of delivery does not change the ratio of salting (Chi-Square Tests; $p=0.391$).

Time of salting was varying between the day of delivery and 90th day and the mean, however, was 19.31th day.

There is one case with time of salting on 90th day. This case was hospitalized in the intensive care unit for a period of 3 months due to prematurity and discharged and salted as soon as s/he arrived at home. This, in turn, is a strong evidence suggesting that this tradition is still very dominant. The most appropriate training for prevention should be performed after delivery just before a baby is discharged. Because a baby, who is not brought for routine follow-up, is salted in the earliest time.

Falling off of the umbilical cord and the 40th day were the most remembered days of salting. In the literature, too, falling off the umbilical cord and the 40th day are frequently reported periods for salting (2, 6, 29).

In those who were salted, the youngest age was 2 days old, the oldest age was 15.71 years old and the mean was 4.41 years. This, in turn, indicates that this tradition is still dominant among young parents. Also in the study, which was conducted in Ödemiş and 80% of the mothers were below age of 30, 0-1 year old babies were investigated and the ratio of salting was found to be 67.3% (3).

In our study, the fundamental material used was determined to be salt. Honey (2, 6, 11), sugar (2, 6), egg yolk (12), clove (2) and some herb leaves (1), which were used together with salt, exhibit similarities with the literature. Apart from these; other materials, including spices, ready-to-use kit bought from herb shops and henna were also materials which were reported to be used in our study.

Table 5: Reported salting percentages in Turkey (A-Z)

City	Number of Subjects	Study Year	Salting Percentage
Ankara	121	2008	40%
Çankırı	150	2008	23.3%
Denizli	584	2017	67%
Diyarbakır	437	2017	11.7%
Gaziantep	71	2014	47.3%
Karaman	436	2014	25.7%
Kastamonu	98	2015	44.9%
Manisa (Karaağaçlı)	77	2012	81.9%
Mersin	45	2010	86.5%
Nevşehir	1484	2011	17.5%
Ödemiş (İzmir)	150	2013	67.3%
Şanlıurfa	200	2005	39%
Tokat	400	2007	64%
Trabzon	384	2011	31.5%

Ways of practice are consistent with the literature. Basically, a baby is washed, his/her body is coated with salt before s/he is dried and s/he is swaddled and waited for a period of time ranging from 5 minutes to 6 hours.

In all of our patients, it was expressed that they were salted to "prevent stinking of sweat".

Salt is the best-known substance which may lead to health problems. These have been represented in case reports as dehydration, kidney failure and intracranial haemorrhages (15, 16, 30).

It is likely for the duration of salting to influence severity of hypernatremia which may develop in a baby. This duration may be extended up to 6 hours. Similarly, salting of the oral cavity is also among factors that may facilitate entering of salt into bloodstream.

During conduction of our study, a 20-day old baby was hospitalized due to diagnosis of salting-induced dehydration. In order to discard sepsis in this baby, as s/he had high temperature (40°C), hospitalization and further tests were required.

In our country, many studies on neonatal hypernatremia have been conducted. Hypernatremia was estimated to vary between 1.8% and 14.41% among causes of neonatal hospitalizations. Although breast milk is considered in etiology in these patients, salting is as case reports and limited (31-34).

In the study conducted by S.Ünal and colleagues, neonatal hypernatremia occurred due to breast milk with a ratio of 4.1%. In 169 term newborns included in the study, complications including acute renal failure, increased liver enzymes, disseminated intravascular coagulation, cerebral oedema, intracranial haemorrhage, cavernous sinus thrombosis, bilateral iliac artery thromboses, convulsion and death developed (32).

All of these findings are likely to occur also in salting-induced hypernatremia. In the neonatal case reported by Bucak and colleagues from Adıyaman, widespread bullous lesions and dehydration were present. Blood sodium value was measured to be 153 mmol/L (17).

In a case reported by Yercen and colleagues from Izmir (14), in 10 cases reported by Peker E. and colleagues from Van Province (15) and also in a case of 39-week old baby developed post-salting fournier gangrene-like complications in scrotum (14), hypernatremia was present in all.

Side effects of substances other than salt will be able to be learned through new case reports.

Family of each baby born in our hospital are informed about potential harms of baby salting by paediatricians.

When the files were examined, the net benefit of this was observed. None of these babies (n=67) were reported to be salted. This, in turn, shows that, although it is a common tradition, satisfactory outcomes may be obtained when a training is provided.

Additionally, each mother (n=584) were informed after filling of the files about potential harms of baby salting and benefitting of their children, grandchildren and children of their neighbours was intended.

The intended population in training should be maternal grandmother, paternal grandmother and mother. Because, these practices were generally adopted from the mother and mother-in-law (35). Furthermore, especially on first days, the practice may be performed by family elders unbeknown to the mother.

CONCLUSION

Baby salting is a traditional practice which is still extensively performed in our country. The practice is likely to lead to health problems. History of salting should be investigated in babies who were admitted with clinical manifestations of sepsis or dehydration or laboratory findings of hypernatremia in the neonatal period.

Healthcare professionals should be informed about the issue, in each neonatal clinic, families should be trained on prevention.

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