



# NEWBORN BODY TEMPERATURE; COMPARATIVE STUDY TO SEE THE IMPACT ON NEWBORN BODY TEMPERATURE AFTER SKIN CONTACT OF MOTHER AND NEWBORN V/S CONVENTIONAL METHOD.

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**ABSTRACT... Objectives...** To identify comparative study to see the impact on newborn body temperature after skin contact of mother and newborn v/s conventional method. **Study Design:** Cross sectional, analytical study. **Place and Duration:** Department of Obstetrics and Gynecology (Unit-III) Liaquat University Hospital, Hyderabad Sindh from May 2013 to April 2014. **Methods:** All the laboring women with no any antenatal complication and with cephalic presentation admitted at term pregnancy for normal vaginal delivery along with new born with Apgar score more than 6 were approached by duty doctors. Written as well as verbal consent was obtained and women have allocated numbers, 1 to 120. The women were divided in two groups. Group A (baby warmer group 60 patients) and Group B (Skin to skin contact 60 patients). **Results:** 120 patients were recruited and randomly equally divided into two groups. There over all mean age of these patients was 26.7+- 5.0years. In group A the gravida was found as between 1 to 6 children in 60% (n=30), Compared with Group B, 64% (n=32). The overall mean hospital stay was as 6.6+ \_ 1.6 hours. Personal health response like was found in 76% (n =38) patients with group A compared with Group B 86% (n=43). Mother response like was found in 76% (n=38 patient in group A) compared with group B 76% (n=38). There is statically significant mean difference in °F after one hour was observed (P=0.001) between group A and group B, no significant mean difference in temperature °F after 1 and 5 minutes were observed ( P > 0.05)compared with in group B 76% (n=38) patients. **Conclusion:** Skin to skin contact reduces the hypothermia, so it should be encourage and continue. Skin to skin contact is easy, cheap and helps in bonding of mother and baby. With this practice we will achieve the millennium development goal (MDG) that is to decrease neonatal mortality in Pakistan.

**Key words:** skin to skin contact, baby warmer, millennium development goal

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## INTRODUCTION

In developing countries around 21% infant mortality is caused by hypothermia.<sup>1</sup> The temperature inside the womb and after the birth baby's temperature dropped rapidly due to rapid change in environmental condition. Delivered neonate loses heat in four different ways namely: evaporation, conduction radiation and convection.<sup>1,2</sup>

Thermal protection of the newborn remains a global concern and a challenge for health care providers despite advances in technology that provide warmth and minimize the risk of hypothermia after birth.<sup>3</sup>

However, main mechanism of loss of heat from newborn body is through evaporation of amniotic fluid and by conduction also, as a result neonates quickly depletes glucose stores, develop hypoglycemia, respiratory distress and metabolic acidosis as compensatory mechanism is prolonged.<sup>1,2,4</sup> Therefore, efforts should be made to keep the neonate in natural thermal environment. This is achieved through quickly keeping the neonate on his mother's belly, swaddling him snugly and applying a head cap to prevent heat loss.<sup>5,6</sup> Other ways to maintain the neonates temperature and to promote early bonding is to dry the neonate quickly then keep the neonate on mother's bare chest or abdomen

and put a warm sheet over them till the delivery of placenta or episiotomy being repaired.<sup>5,6</sup>

Generally, loss of heat can exacerbates with surrounding air and a neonate can be hypothermic even at room temperature i.e. 30°C.<sup>7,8</sup> A neonate can predisposed to hypothermia from cold environment during first 10 to 15 minutes of their life and if we will not do necessary preventable measures for thermal protection then it can lead to fall in body temperature by 2-4 °C. If such loss of heat due to convection and radiation continued, then it will definitely lead to hypothermia. Commonest problem in new born till body is hypothermic and it accounts for a very high perinatal mortality.<sup>2</sup>

Cold stress can be harmful or even fatal. If increase the amount of oxygen and glucose needed so it is a duty of mother, labor and peds ward nursing staff to protect newborn from hypothermia related issues and its management. Therefore, this study is aimed to identify the various effects of thermo regulatory system of new born after skin to skin contact of mother and newborn.

## MATERIAL AND METHODS

### Study Design

Cross sectional analytical study

### Place and Duration

Department of Obstetrics and Gynecology (Unit-III) Liaquat University Hospital, Hyderabad Sindh from May 2013 to April 2014.

### Sample Size

120 women as per selected criteria were selected and distributed in equal half.

### Inclusion Criteria

- Babies born with Apgar >6
- Primigravida and multigravida with no antenatal complications
- admitted at term for SVD
- Cephalic presentation

### Exclusion Criteria

- Babies in distress, required instrumental or C/

sec deliveries

- Mothers having medical disorders like diabetes, hypertension, APH
- Babies with congenital anomalies
- babies having Apgar <6
- Low birth weight babies

### Statistical Analysis

Student T test applies for data entering by using SPSS version 16.

### Procedure

All laboring women as per selected criteria were approached by duty doctors. Written as well as verbal consent was obtained and women have the allocated numbers, 1 to 120.

All the laboring women with no any antenatal complication admitted at term pregnancy with cephalic presentation for normal vaginal delivery along with new borns with Apgar score more than 6 were approached by duty doctors. Written as well as verbal consent was obtained and women have allocated numbers, 1 to 120. The women were divided in two groups. Group A (baby warmer group) and Group B (Skin to skin contact). In group A (baby warmer) having allocation numbers 1 to 60, in which baby was taken out to baby warmer, After Completion of group A, moved to group B (skin to skin contact) having allocation numbers from 61 to 120, that have skin to skin contact, i.e by placing baby on mother bare chest or abdomen shortly after birth for five to ten minutes, while umbilical cord was cut and placenta was delivered and then recorded axillary temperature by placing the bulb of mercury thermometer against the dry roof of baby's axilla, baby arm was held close to body in order to keep thermometer in place temperature was taken after 1,5 minutes and after 1 hour of birth.

## RESULTS

120 women were selected for the study. These women were divided into equal halves. Mean age of these women was as 26.7 ± 5.0 years. In group "A" the mean age of the patients was 27.5 ± 5.0 years compared with second half which was 25.8 ± 4.7 years. In group "B" patients had younger

patients as compared to in group “A”. Majority of patients in group “A” and group “B” was 58% (n=29) vs 50% (n=25) were between age group of 25 to 31 years as shown in Table-I.

Age group (years)	Conventional Method		Skin to skin mother contact	
	n=60	(%)	n=60	(%)
18 - 24	17	28.0	22	36.0
25 - 31	29	48.0	25	41.0
≥32	14	23.0	13	21.0
Mean ± S.D	27.5 ± 5.2		25.8 ± 4.7	

**Table-I. Distribution of age by groups**

In group “B” the gravida was found as between 1 to 6 children in 64% (n=32) of patients compared with group “A” 60% (n=30) of patients in Table-II. In group “B” the parity was found as between 1 to 4 children in 52% (n=26) of patients compared with group “A” 52% (n=26) of patients in Table-III.

Gravida	Conventional Method		Skin to skin mother contact	
	n=60	(%)	n=60	(%)
PG	20	33.0	16	26.0
1 - 6	30	50.0	32	53.0
7 - 10	10	16.0	12	20.0

**Table-II. Distribution of gravida by groups**

Parity	Conventional Method		Skin to skin mother contact	
	n=60	(%)	n=60	(%)
0	16	26.0	17	28.0
1 - 4	30	50.0	27	45.0
5 - 8	14	23.0	16	26.0

**Table-III. Distribution of parity by groups**

The overall mean hospital stay was as 6.6 ± 1.6 hours. In group “A” the mean hospital stay was 6.5 ± 1.5 hours compared with in group “B” was 6.7 ± 1.8 hours.

Personal health response like was found in 76% (n=38) patients in group “A” compared with in group “B” 86% (n=43) patients as shown in Table-IV. Mother response like was found in 76% (n=38) patients in group “A” compared with in group B 76% (n=38) patients as shown in Table-V.

Health personal response	Conventional Method		Skin to skin mother contact	
	n=60	(%)	n=50	(%)
Like	38	63.0	43	71.0
Dislike	6	10.0	7	11.0
No response	16	26.0	10	16.0

**Table-IV. Distribution of health personal response by groups**

Health personal response	Conventional Method		Skin to skin mother contact	
	n=50	(%)	n=50	(%)
Like	38	63.0	41	68.0
Dislike	6	10.0	7	11.0
No response	16	26.6	12	20.0

**Table-V. Distribution of mother response by groups**

Statistical significant mean difference in temperature °F after 1 hours was observed (p=0.001) between group “A” and group “B”, no significant mean difference in temperature °F after 1 and after 5 minutes were observed (p>0.05) compared group “A” and group “B” as shown in Table-VI.

Temp-erature °F	Conventional Method		Skin to skin mother contact	
	Mean ± S.D n=50	Mean ± S.D n=50	Mean difference	p-value
Recoding after 1 min	97.3 ± 1.1	97.2 ± 1.0	0.124	0.576
Recoding after 5 mins	97.5 ± 1.0	97.7 ± 0.9	-0.230	0.258
Recoding after 1 hour	97.7 ± 0.8	98.2 ± 0.6	-0.516	0.001

**Table-IV. Comparison of temperature at different point in time by groups**

**DISCUSSION**

This study was conducted to obtain views of Pakistani health care providers. Although the research showed the positive results regarding skin to skin contact between mother and the new born (SCC) while, this practice not used routinely in developing country including in Pakistan. No study has explained the reasons.

There are many recently published studies<sup>9</sup>

showed the great benefits of skin-to-skin contact soon after delivery including secretion of oxytocin in mothers' blood which leads to faster placenta removal and reduction of uterine bleeding.<sup>10</sup> Other benefits for neonates are stabilization of the newborn's body temperature<sup>11,12</sup> and respiration<sup>13</sup>, heart rate regulation and oxygen saturation consequent to (SSC).<sup>14</sup> This showed majority of participants addressed all these benefits for mother and newborn.

Skin to Skin Contact (SSC) is the natural process to start breast feeding soon after delivery. It is novel, easy, readily available, easily reproducible technique which helps mothers initiate breast feeding in a natural way.<sup>15</sup> As it has been developed in 1987 for the first time, in Sweden<sup>11,14</sup>, the human normal newborn like any mammal's neonate, has the inborn ability to crawl on the mother's abdomen to find her mother's breast for breastfeeding immediately after birth.<sup>13</sup>

Soon after the delivery, a baby is usually active then goes in stage of deep sleep. When requires rest and recovery which is perfect stage for latching on to the breast.<sup>16</sup> The first latch-on has critical importance and has a positive impact on long-term lactation success. Its most important benefits are significant reduction of malnutrition, mortality and morbidity among the children. Early initiation in the first hour of the birth can prevent 22% of neonatal death in developing countries.<sup>13</sup>

### MOTHER RESPONSE REGARDING SKIN TO SKIN CONTACT

Ten women were selected for randomized trial done by Widstrom et al (1990) which showed immediate contact of the breast within 30 minutes of delivery increase bonding of mother and new born. 32 women whose new born when come in contact with mother's breast and start feeding they left their babies in the day care centers for limited time period and they were more worried about their babies than other half of the women who were permit to skin to skin contact without breast feeding.<sup>17</sup>

In Karolinska Institutet, Stockholm, Sweden;

Hospital on research carried out regarding axillary temperature at form half our hour to two hours after delivery. Babies who are in women's arm and nursery groups, showed significant difference in temperature (P-Value 0.0001). Same results showed in the studies of ANOVA and FISHER's.<sup>18</sup>

With passage of time raised temperature is noted (DF = 6, F-value = 127.5, p \_ 0.0001), and this rise in temperature differs significantly with both groups. (DF = 12, F-value = 5.57, p = 0.0001).

Average temperature of thigh at from thirty to one hundred twenty minutes after delivery in skin to skin contact in mother's arm and nursery group while the study done by ANOVA, their result showed significant difference in temperature (DF = 2, F-value = 40.75, p \_ 0.0001).

Similar results were found in our study which was done in 120 women were suitable in the criteria for this study. In this study criteria of the age were compared and the result showed mean age of women were  $27.5 \pm 5.2$  years as compared to second half of women in which result showed  $25.8 \pm 4.7$  years.

### CONCLUSION

In our setup due to over burden of work, this study may help in developing new practices for maintaining body temperature of new born. We can save many babies from hypothermia by providing skin to skin contact of mother and newborn, because it is easy, highly effective, time saving practice. The usual practice of our ward is the conventional technique in which baby is delivered, cord is cut immediately and newborn is handed over to health staff (doctor/nurse), who took the baby, to infant warmer and assessed for further resuscitation. if such practice continue here with heavy work load and limited availability of warmers then we could not achieve the millennium development goal (MDG) for that is to decrease neonatal mortality.

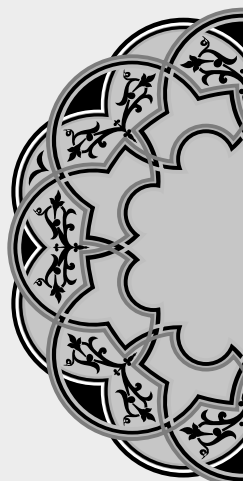
From my study I have concluded that skin to skin contact reduces hypothermia, so it should be

encouraged and continue. Skin to skin contact is easy, cheap and helps in bonding of mother and baby.

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*“Intelligence without ambition  
is a bird without wings ”*

**Unknown**

#### **AUTHORSHIP AND CONTRIBUTION DECLARATION**

<b>Sr. #</b>	<b>Author-s Full Name</b>	<b>Contribution to the paper</b>	<b>Author=s Signature</b>
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2	Dr. Nigar Jabeen	Data collection, Literature search	
3	Dr. Raheela Baloch	Study concept literature search	
4	Ms. Kiran Mawani	Data collection and data analysis	