

Thesis Title Measurement of Axillary and Rectal Temperatures in Premature Infants

Author Miss Pacharee Chan-in

M.N.S. Maternal and Child Nursing

Examining Committee :

Assistant Professor Dr. Ratanawadee	Chontawan	Chairman
Assistant Professor Malee	Charoenmuang	Member
Doctor Somporn	Choatnaroemon	Member
Assistant Professor Tatsana	Mahanupab	Member
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Abstract

The purpose of this comparative descriptive research design were : to determine the maximum temperatures and the optimal length of time needed in obtaining maximum axillary and rectal temperatures; to compare the maximum axillary and rectal temperatures; and to compare the optimal length of time needed in obtaining maximum axillary and rectal temperatures of premature infants using a glass thermometer. The sample consisted of thirty premature infants which were kept in the servo-controlled incubator and the abdominal skin temperature was maintained at 36.5°c. The room temperature was controlled at 27 - 30°c. The gestational age of these infants ranged from 30 to 36 weeks and their age ranged from 48 to 72 hours. The infants were of appropriate weight for gestational age and were admitted to the high-risk newborn nursery unit at Maharaj Nakorn Chiang Mai hospital. The sample was selected by purposive sampling.

Instruments for this research included servo-controlled incubater, glass thermometer,

hygrometer, lens used for reading temperature, demographic data form and body temperature data form. The reliability of the instrument was tested for constancy of the thermometers by comparing with standard instrument. The interrater reliability of two investigators was equal to 1.

The temperature measuring episode consisted of taking both axillary and rectal temperatures simultaneously. Without removing the thermometers the infant's temperatures were recorded every single minute until the temperatures remained unchanged for two consecutive reading.

The derived data was analyzed using frequency, percentage, mean and standard deviation. The hypotheses were tested using Wilcoxon match - pairs sign rank test.

The data indicated that the maximum axillary temperatures ranged from 36.7°C to 37.3°C and the maximum rectal temperatures ranged from 36.8°C to 37.4°C . The range of difference between the maximum rectal and axillary temperatures was from 0.0°C to 0.2°C ($\bar{X} = 0.11^{\circ}\text{C}$). To determine the optimal length of time required to reach maximum temperatures, the majority of the infants (73.33 %) took 3 minutes to reach the maximum axillary temperatures whereas another 26.67 % of them took 2 minutes to do so. As for the rectal temperatures, the majority of the infants (90 %) required 2 minutes to reach the maximum temperatures whereas another 10 % of them required 3 minutes to do so. One hundred percent of the sample required 3 minutes to reach the maximum temperatures both rectal and axillary measurement.

To compare the difference between the maximum axillary temperatures and the maximum rectal temperatures and to compare the difference between the optimal length of time needed in obtaining maximum axillary and rectal temperatures, the results were as follows:

1. There was a statistically significant difference between the maximum axillary and rectal temperatures at the level of .01.
2. The axillary site required statistically significant more time to reach maximum temperatures than the rectal site at the level of .01.

Although there was a significant difference between temperatures for the two methods, the rectal temperatures were only 0.11°C higher than axillary temperatures. For practical

purpose, this difference may not make a great difference in diagnosing an infant's health status. Thus, axillary measurement is preferable to rectal measurement because axillary measurement is considered safer than rectal measurement. However, the premature infant should be placed in neutral thermal environment. It was recommended that three minutes was an optimal length of time for rectal and axillary temperatures taking in the premature infant.