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Assessment of Newborn Baby's Temperature by Human Touch: A Potentially Useful Primary Care Strategy

With reference to the recent article on 'Assessment of newborn baby's temperature by human touch: A potentially useful primary care strategy'(1), I would like to offer the following comments.

There is an urgent need to develop an index of hypothermia which is comparable to actual temperature measurements at critical levels and can be employed usefully by all cadres of health workers as well as the mother in order to recognize hypothermia early and to avoid its dreaded consequences. The study is a right step in this direction but there are certain lacunae.

The maintenance of body temperature is crucial to the survival of LBW, preterm and all sick newborns. Term babies usually maintain their temperatures at 28°C (which in the present study was the ambient environmental temperature). The study has been done exclusively in those babies who were not at increased risk of hypothermia. It would have been ideal, had the study been done in LBW and preterms, who even in the field settings, are the candidates for developing hypothermia.

Due to the above mentioned reasons,

only one baby, in the entire study had abdominal/core temperature of less than 36.0°C and none had real hypothermia (defined as core temperature <35.5°C or skin temperature <35.0°C)(2). This means that the three observers had little chance of exercising their skills on hypothermic babies. Thus, the inference drawn from the study that human touch can accurately predict the skin temperature does not hold true for all possible temperature ranges. In this context, the temperature of forehead and foot become irrelevant as it is the abdominal skin temperature which is closest to the core temperature.

While designing a study, the temperature sensing by human touch should also have been compared with other early clinical manifestations of hypothermia such as sluggishness, inactivity and refusal to feed in relation to their respective positive and negative predictive values. Only by doing this analysis, one method can be claimed superior to others and then can be further recommended as a primary care strategy.

Secondly, the art of sensing the temperature is difficult to be imparted through simple verbal/practical training of 4 to 8 weeks at an NICU. It is only the experience that counts. In the present study also, the discriminatory capability of the personnel to correctly perceive the skin temperature by touch was directly related to the experience of the pediatrician. However, all the pediatricians in the present study had an experience of minimum 5 years at high level II Neonatal Care Unit. It would be interesting to study the mother's/paramedical workers' perception of baby's temperature by touch and compare it with that of experienced personnel.

As the authors have themselves pointed out their observations should be validated in the field settings. Till such time, one can

only speculate about the credibility of temperature sensing by touch technique and its superiority over other indices for recognizing hypothermia in peripheral settings.

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Reply

Our study has conclusively demonstrated that *even* minor grades of hypothermia can be identified by touching the skin of abdomen and extremities of the babies. All the four babies with skin temperature of less than 36.5°C were correctly picked up by one pediatrician while three out of four babies were correctly identified by the other two pediatricians. All three observers correctly diagnosed the sole baby with skin temperature of less than 36°C.

It is obvious that an experienced observer can identify *even* minor grades of hypothermia. It is unwise to wait for development of sluggishness, inactivity and refusal of feeds which are likely to occur late

due to severe hypothermia or cold injury. Early identification of cold extremities is not irrelevant because they provide earliest evidence of cold stress. Such babies must be identified by the mother or health worker before the trunk or core temperature falls below 36°C so that effective covering and provision of warmth is provided to prevent development of life threatening hypothermia.

We would like to inform that none of the pediatricians had made any special efforts to train themselves or assessed their ability to perceive skin temperature by touch before participating in the study. The ability to correctly perceive skin temperature is a function of sensitivity of the palm and finger tips and is not related to the education or experience of an individual in other skills. It is conceivable that with training and special efforts it should be possible to enhance the touch sensitivity of the health professionals irrespective of their educational status or formal training. However, as rightly pointed out and emphasized by us in the article, there is certainly a need to validate these observations in the field setting after imparting proper orientation and training to the basic health workers. The main objective of the training should be to enable the health workers to identify babies having cold and pale/blue extremities (palms and soles) rather than the identification of babies who have actually developed hypothermia which may be too late for their salvage.

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