

Stress in the Newborn as Measured by Salivary Cortisol: Determining Normal Values

Lee Tucker, College of Nursing, Ellise D. Adams, PhD, CNM, College of Nursing

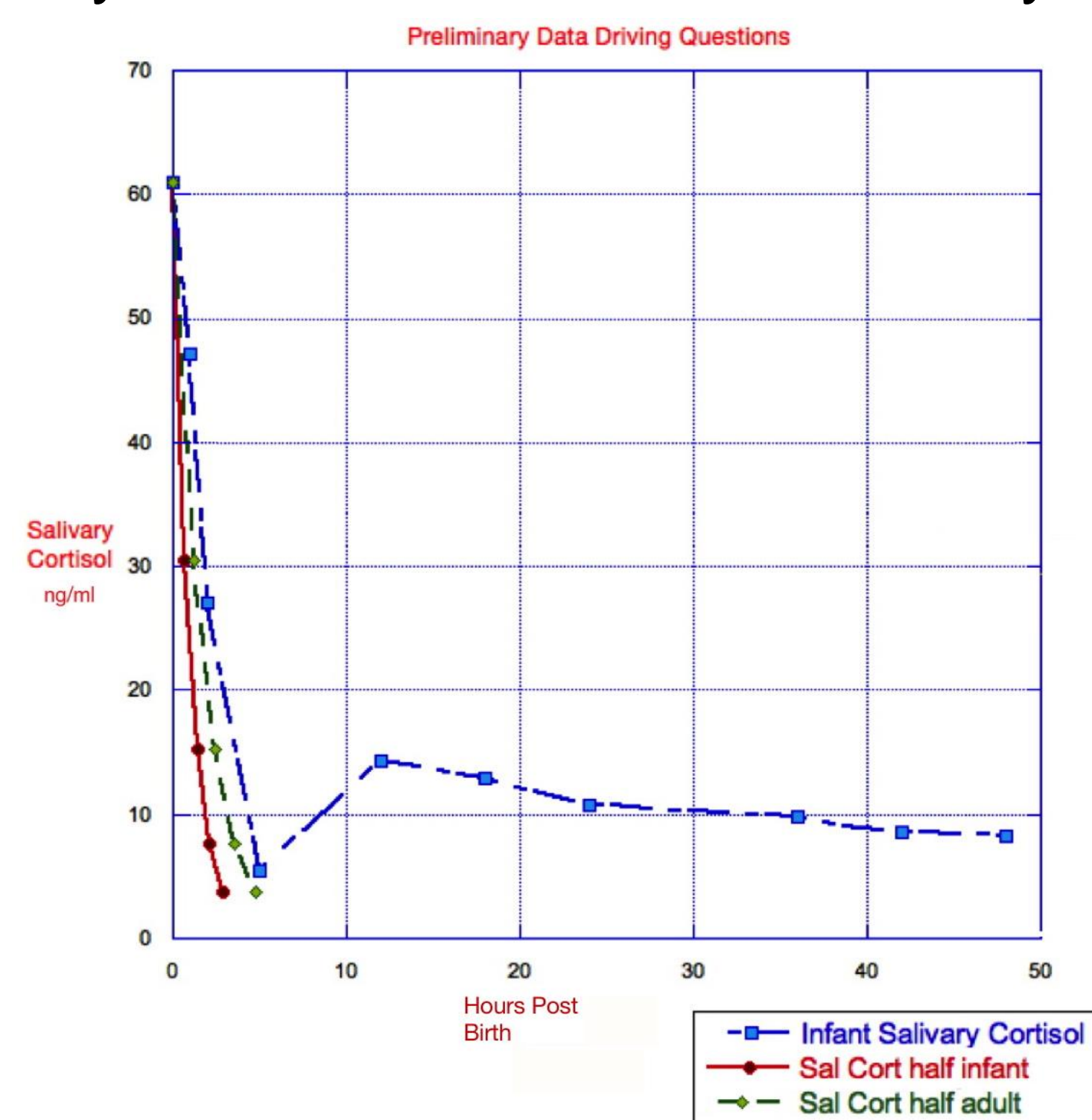


Key Findings

Data from three unrelated newborn cortisol studies were combined. One skin-to-skin study measured cortisol levels in newborns from birth to 2 hours post birth. Another study measured salivary cortisol levels from 12 to 48 hours post birth. A 5-hour data point was pulled from a third study concerning the possible synchronization of circadian rhythm at birth.

Corticosteroids are essential for the development of the fetus. In early newborn life, cortisol is already of importance for stress responses and metabolic homeostasis.

Salivary Cortisol is used as an indicator of infant stress, but what is “normal”? Levels can be affected by vaginal vs. cesarean birth, birth time of day, birth position, skin-to-skin contact, etc. Some studies have looked at circadian cortisol response and birth endocrine reset of cortisol, however little is known about normal ranges for the newborn.



Combining the data yields what looks like a cortisol decay curve, moving from a high level at birth, to a lower constant “baseline” several hours post birth.

Impact



Elucidating normal or baseline cortisol levels would allow researchers to use a standard curve against which to plot cortisol excursions. This in turn would allow for an additional method to compare cortisol levels across immediate newborn populations with respect to mother-baby interactions, such as skin-to-skin care.

Future Research Questions

Is there a “normal” cortisol level that can be extracted from existing data or can existing data be used to point to a “normal” level? How does the elimination half-life of cortisol affect results?

Proposed Study

To undertake an in-depth systematic review of published research in order to build a newborn database of measured salivary cortisol, compare that with elimination half-life of cortisol, and determine if a baseline cortisol level can be extracted.

Acknowledgements

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