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Letter to the Editor: Neuropathology of Sudden Unexpected Postnatal Collapse

1. Letter to the Editor of “early human development”

We would like to refer to the interesting review of Monnelly and Becker recently published on *Early Human Development* (2018; 126: 28–31) entitled “Sudden unexpected postnatal collapse”.

The authors highlight the current knowledge about the sudden and unexpected postnatal collapse (SUPC), considering many aspects (from the differences between SUPC and sudden unexplained death in infancy, the possible causes and the implementation of preventative strategies). In particular they indicate that over half of SUPC infants shows an underlying pathology at autopsy, such as congenital anomalies, infection, metabolic diseases and pulmonary hypertension, and that SUPC frequently occurs in the context of skin to skin care (SSC). In this regard we would like to add new information on the pathogenesis of SUPC, especially when associated with SSC, on the basis of the findings of a recent our study [1]. In 22 healthy term newborns, suddenly died in the first hours of life without the identification of a cause at routine autopsy, 12 of which occurred concurrently with SSC, and in 10 age-matched controls died of known pathology, we performed a thorough examination of the nervous system, according to the guidelines developed by us [2] in accordance with the application of Italian law 31/2006 [3]. The hypoplasia of the Kölliker-Fuse nucleus (KFN), an important neuronal center located in the rostral pons that is essential in the breathing coordination, was diagnosed in 11 of the 12 SUPC cases occurred during SSC and in none control case. We conclude that the defective development of the KFN, an indispensable center for life, could compromise the vital functions in situations of oxygen deficiency conceivably caused by the infant prone positioning during SSC. Therefore, this alteration can be considered a new possible finding in

the autoptic examination of SUPC victims, particularly when the death occurs during SSC. Our study emphasizes the importance of a deep examination of the nervous system, above all when a newborn unexpectedly dies in the first hours of life during SSC. The finding of a defective development of the KFN could also protect clinicians from any legal consequence.

References

- [1] A.M. Lavezzi, S. Ferrero, B. Paradiso, L. Chamitava, F. Piscioli, T. Pusiol, Neuropathology of early sudden infant death syndrome-hypoplasia of the pontine Kölliker-Fuse nucleus: a possible marker of unexpected collapse during skin-to-skin care, *Am. J. Perinatol.* (Aug 31 2018), <https://doi.org/10.1055/s-0038-1669398>.
- [2] L. Roncati, F. Piscioli, T. Pusiol, A.M. Lavezzi, Neuropathological protocol for the study of unexplained stillbirth, *Folia Neuropathol.* 55 (2) (2017) 79–85.
- [3] Constitution of the Italian Republic Law n° 31. Regulations for diagnostic post-mortem investigation in victims of sudden infant death syndrome (SIDS) and unexpected fetal death, *Official Gazette of the Italian Republic, General Series*, 34 2006, p. 4 (Available at:), http://users.unimi.it/centrolinorossi/files/gazz_ufficiale.pdf, Accessed date: 29 May 2015.

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