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FHR patterns that become significant in connection with ST waveform changes and metabolic acidosis at birth.

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Abstract

INTRODUCTION:

Recent developments have produced new CTG classification systems and the question is to what extent these may affect the model of FHR + ST interpretation? The two new systems (FIGO2015 and SSOG2017) classify FHR+ ST events differently from the current CTG classification system used in the STAN interpretation algorithm (STAN2007).

AIM:

Identify the predominant FHR patterns in connection with ST events in cases of cord artery metabolic acidosis missed by the different CTG classification systems. Indicate to what extent STAN clinical guidelines could be modified enhancing the sensitivity. Provide a pathophysiological rationale.

MATERIAL AND METHODS:

Forty-four cases with umbilical cord artery metabolic acidosis were retrieved from a European multicenter database. Significant FHR + ST events were evaluated post hoc in consensus by an expert panel.

RESULTS:

Eighteen cases were not identified as in need of intervention and regarded as negative in the sensitivity analysis. In 12 cases ST changes occurred but the CTG was regarded as reassuring. Visual analysis of the FHR + ST tracings revealed the following specific FHR patterns: A. An instantaneous rise in beat-to- beat variations + ST event indicate an alarm reaction caused by instantaneously reduced cord vein blood flow and altered central hemodynamics evoking the heart protective Bezold-Jarisch reflex. B. A reduced beat-to-beat variation after a previous increase during 2nd stage of labor illustrating a situation where the fetal capacity is failing. C.

Repeated decelerations in 2nd stage with recovery phase of < 2 minutes illustrating inadequate reoxygenation.

CONCLUSIONS:

These findings indicate FHR+ST analysis may be undertaken regardless of CTG classification system provided there is a more physiologically oriented approach to FHR assessment in connection with an ST event.