

FETAL HYPOXIA IN LABOUR: PATTERN RECOGNITION VERSUS PHYSIOLOGICAL INTERPRETATION OF CTG DGH EXPERIENCE

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Introduction:

Emerging evidence suggested improvement in maternal and perinatal outcomes after implementation of the physiological interpretation of CTG in the maternity units in the UK and in several other countries. Intrapartum related hypoxic-ischaemic encephalopathy(HIE) and the rate of emergency caesarean sections for suspected fetal compromise is reduced as a result.

Objective:

In December 2021 trust moved from using a pattern recognition model of CTG interpretation to a physiology based interpretation of fetal well being .We compared the number of babies referred for cooling and diagnosed with HIE in the 3 years prior & 3 years post introduction of the revised training protocol, to ascertain preliminary impact analysis.

Design:

There was change in local staff CTG training to reflect new trust guidelines which incorporated aspects of physiological interpretation of the CTG .We used this as sentinel event to analyse potential impact on better detection and early intervention for fetal hypoxia in labour .We used the number of babies referred for cooling and diagnosed with HIE as a surrogate marker for the same

Method: Time period: 2019 to 2024.

A retrospective analysis of the data provided by the Governance team was done.

Results:

In the 3 years (2019 to 2021), a total of 18 babies received therapeutic hypothermia.16 babies were identified to have HIE. The total number of deliveries in this period was 11091.(Table 1)

In the 3 years (2022 to 2024), a total of 12 babies received therapeutic hypothermia.13 babies were identified to have HIE. The total number of deliveries in this time frame was 10902.(Table 2)Criteria for cooling not met for 1 baby but had mild HIE evidence on Magnetic resonance imaging (MRI).

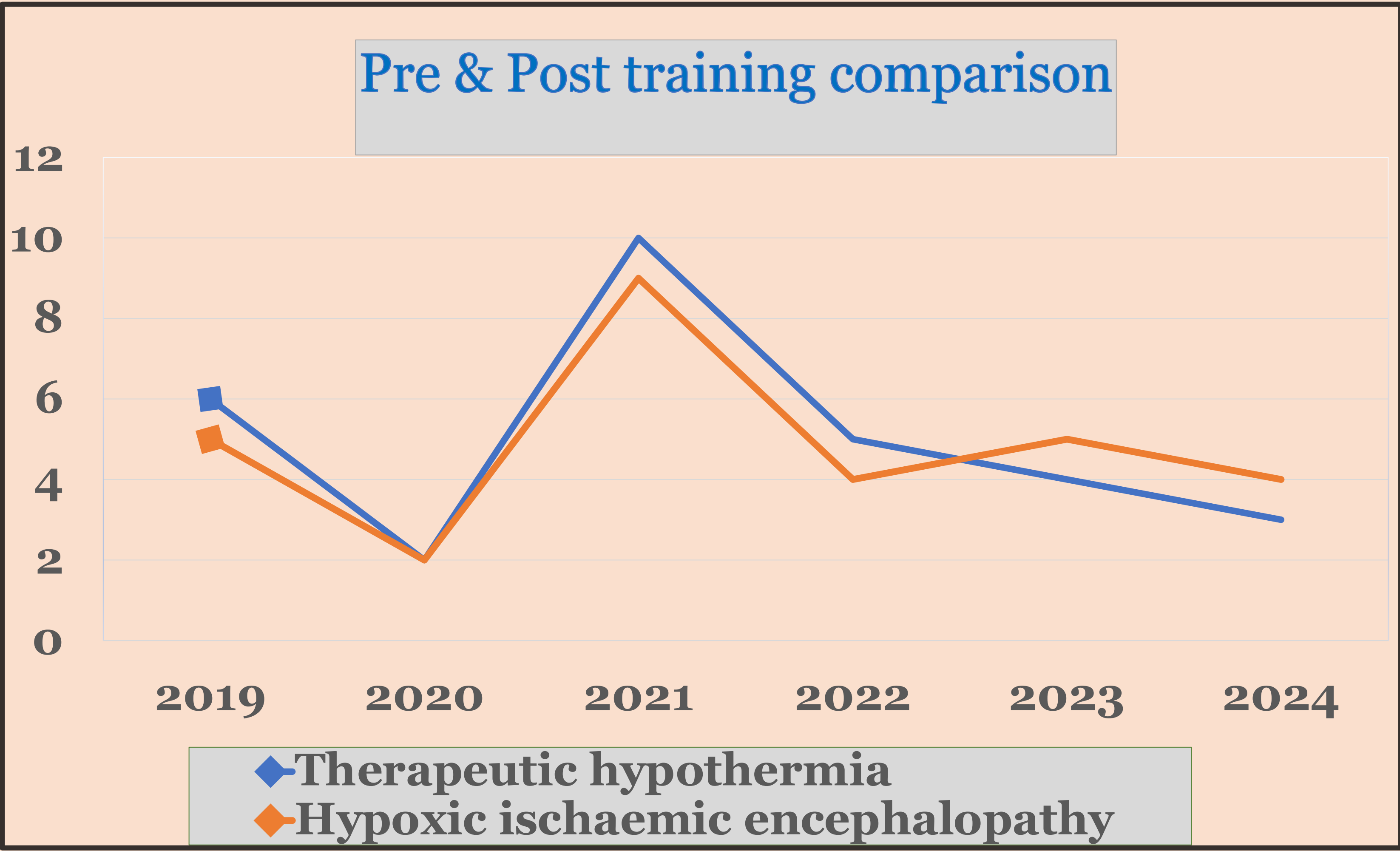
Table 1:Pre new training protocol:

	2019	2020	2021	3yr total
Therapeutic hypothermia (TH)	6	2	10	18
Hypoxic ischaemic encephalopathy(HIE)	5	2	9	16
No. of deliveries	3669	3701	3721	11091

Table 2 :Post new training protocol:

	2022	2023	2024	3yr total
Therapeutic Hypothermia (TH)	5	4	3	12
Hypoxic ischaemic Encephalopathy (HIE)	4	5	4	13
No. of deliveries	3699	3531	3672	10902

Figure 1



Conclusions:

There was a reduction in the number of babies treated with therapeutic hypothermia and diagnosed to have HIE following introduction of protocols based on physiological interpretation of CTG(Figure 1).This preliminary assessment suggests move from protocols based on pattern recognition to that based of physiological interpretation of the CTG helps with earlier recognition of fetal hypoxia and more timely intervention as evidenced by reduction of babies diagnosed to suffer from the sequelae of hypoxia in labour. We take on board the fact that the marker used is very broad and may be impacted by multiple other variables .The small numbers preclude analysis of statistical significance. In the future we hope to conduct larger studies to assess the validity of these preliminary results .

References:

1. [Recommendations | Fetal monitoring in labour | Guidance | NICE](#)
2. [FIGO consensus guidelines on intrapartum fetal monitoring: Cardiotocography - Ayres-de-Campos - 2015 - International Journal of Gynecology & Obstetrics - Wiley Online Library](#)
3. [International expert consensus statement on physiological interpretation of cardiotocograph \(CTG\): First revision \(2024\) - ScienceDirect](#)