Epidural Related Maternal Fever - Incidence, Measurement & Outcome.

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Key message:
This study highlights the importance of a correct temperature measurement during childbirth.

Background

Epidural Related Maternal Fever (ERMF)

- **Intrapartum hyperthermia** may be secondary to intrapartum infection and/or epidural analgesia. The most common form of intrapartum infection is bacterial genito-urinary tract infection, which has an incidence of 4%. (1)
- **Epidural analgesia** is a widely used form of labor analgesia, particularly in developed countries. In the USA it is selected by more than 70% of parturients. (2). 41.6% of women in Ireland delivered with epidural analgesia in 2020. (3)
- **ERMF** or also known as epidural-induced hyperthermia, refers to the situation in which a parturient who has an epidural for labor analgesia develops an elevated body temperature. (1)
- **Definition: 'a core temperature during labor of >38°C on one occasion or >37.5°C on two consecutive occasions two hours apart'**. (2)
- The precise mechanism responsible for ERMF has not been fully elucidated, but accumulating evidence suggests it is of a non-infectious inflammatory nature. (1,4) Although intrapartum hyperthermia is associated with an increase in the risk of neonatal brain injury, the association with epidural-induced hyperthermia is not clear. (1)

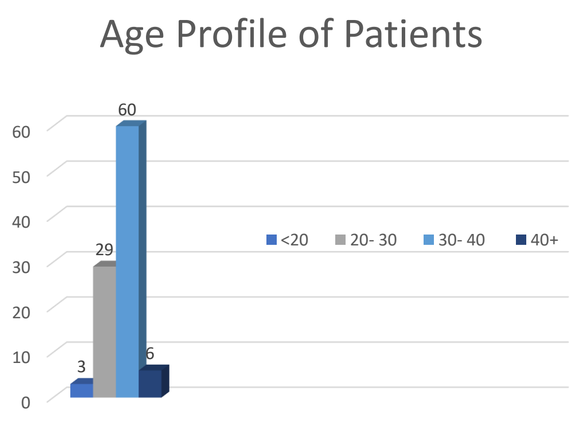
- **The aim of this study** is to provide a brief review of **the incidence of ERMF and related neonatal outcomes** at Cavan Monaghan Hospital (CMH) over a period of three months.

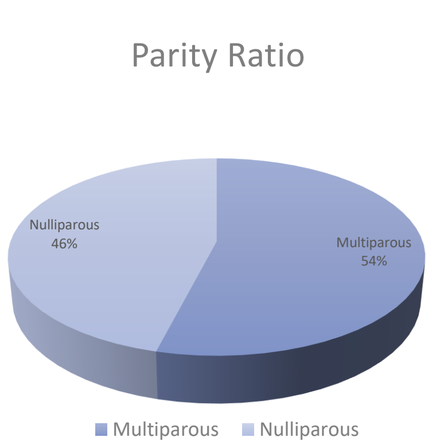
Methodology

- 134 charts between January and March 2021, representing all parturiens with epidural analgesia in labor, were identified from the Hospital Maternity Register. 98 charts were finally reviewed.
- Data collected:

1. Age and Parity of women
2. Interval between Spontaneous/ Artificial Rupture of membrane (ROM) to birth
3. Temperature before insertion of an epidural catheter, Temperatures cca 2 hours and 4+ hours after the epidural analgesia
4. White blood cells account (WBC)
5. The mode of delivery (Spontaneous vaginal delivery, Instrumental delivery or Emergency LSCS)
6. Potential admissions of new-borns to the Special Care Baby Unit (SCBU)

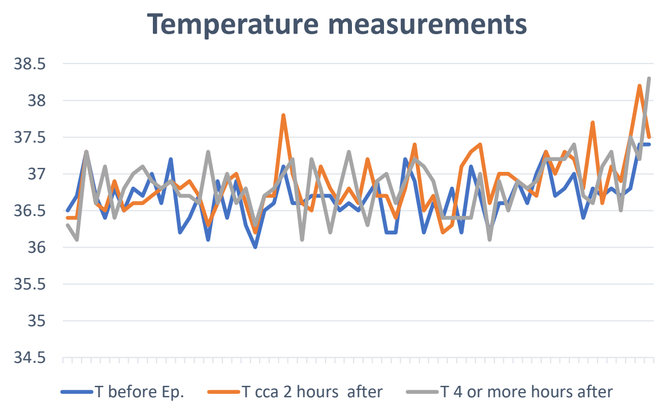
Patients' Characteristics





Results

Ideally, the patient's body temperature should be measured before the introduction of the epidural catheter, subsequently 2 and 4 hours after the start of epidural analgesia.
This measurement was not always performed in an ideal manner. In few cases, no temperature was recorded after 2, resp. 4 hours after the procedure.



By definition, this study revealed 3 patients with ERMF.
- This represents 3% of a given patient sample. (3/98).
- The suspected cause of infection (chorioamnionitis) for higher temperature was identified in 2 patients.
- However, one patient with intrapartum hyperthermia had no infection detected. The pathology report was negative. By contrast, patient had a prolonged ruptured of membrane (PROM) of 38 hours.
- All 3 patients received Paracetamol 1g i.v. after confirmed increased body temperature.
- Not a single new-born of these mothers with fever had to be admitted to the SCBU.

Patients profile

	Patient 1	Patient 2	Patient 3
Age	42	39	35
Parity	multipara	nullipara	multipara
T before	36.8	37.4	36.8
T cca 2 hours	37.5	36.8 (Paracetamol)	37.0
T cca 4 hours	37.5 (Paracetamol)	38.8	38.5 (Paracetamol)
Mode of Delivery	Instrumental Venotouse	Em. LSCS	Em. LSCS
Interval RM birth	38hours	11 hours and 30 min.	13 hours
WBC	8.7	16.5	14.1
Pathology report- placenta	No inflammation present	Chorioamnioitis	Chorioamnionitis ?

Administration of antipyretics in labor can mask ERMF, resulting in low recorded numbers. It certainly has its advantages, as paracetamol also has a good analgesic effect. On the other hand, the recent NICE recommendation is to consider paracetamol for women in labour with a fever, a temperature of 38°C or above on a single reading, or 37.5°C or above on 2 consecutive readings (1 hour apart). The care providers have to be aware that paracetamol is not a treatment for sepsis and should not delay investigation if sepsis is suspected. (5)

Conclusion

This study highlights the importance of **a correct temperature measurement during childbirth**. The NICE recommendations on intrapartum maternal care require women who have had **a single temperature > 37.5°C during labour to have further hourly temperature checks.** (5) This is an area that should be included in our quality improvement plan. Prolonged ruptured of membrane is well known risk factor for intrapartum hyperthermia. (2,4) This small study also confirmed **positive relation between PROM and ERMF, with no infection background**. WBC was not a feature in any of these 3 patients with fever. CRP was not examined, but it should considered.
Although this study was the first in CMH, interesting results related to this globally hotly debated topic were found. Further reviews with precise measurements and more patients are needed to improve the predictive ability of ERMF.

References

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