

Stillbirth Risk During High Outdoor Temperatures in Canada

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1 Background

Risks factors for stillbirth are poorly understood, including the possible impact of high outdoor temperature.

Elevated temperatures may stress pregnant women, particularly at term, and be a risk factor for stillbirth.

5 Conclusion

Elevated outdoor temperature may be a novel risk factor for stillbirth, especially at term, and for stillbirths due to maternal complications or undetermined causes.

2 Methods

Data 5,047 stillbirths and 1,370,779 live births in Quebec, Canada, April-September, 1981-2011

Exposure Maximum daily temperatures the estimated day before death, Environment Canada

Outcome Stillbirth by week of gestation (preterm, term), and cause (undetermined, maternal, placenta/cord/membranes, birth asphyxia, congenital anomaly, other)

Analysis Study design = Case-crossover
Conditional logistic regression to estimate odds ratios between temperature and stillbirth, adjusted for relative humidity

3 Results

Table 1 Risk of stillbirth with elevated temperature the day before death

| | No. Stillbirths | Odds Ratio (95% CI) |
|---------------------------|-----------------|-------------------------|
| | (N=5,047) | 30°C vs. 20°C |
| Gestational age | | |
| Term | 1,693 | 1.22 (1.02-1.46) |
| Preterm | 3,198 | 0.97 (0.85-1.11) |
| Cause of death | | |
| Undetermined | 1,190 | 1.28 (1.02-1.59) |
| Maternal | 248 | 1.72 (1.06-2.80) |
| Placenta, cord, membranes | 1,671 | 0.93 (0.77-1.12) |
| Birth asphyxia | 301 | 1.15 (0.75-1.77) |
| Congenital anomaly | 697 | 0.97 (0.73-1.29) |
| Remaining causes | 940 | 0.90 (0.70-1.15) |

4 Results

Figure 1 Association between stillbirth and maximum temperature the day before death

