

Environmental Noise Pollution and Risk of Hypertension in Pregnancy

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1 Background

- Environmental noise pollution increases the risk of hypertension.
- The association with preeclampsia, a hypertensive disorder of pregnancy, has not been investigated.

2 Methods

Data 269,263 hospital deliveries in Montreal, Canada, 2000-2013 (from Med-echo)

Exposure Total outdoor noise levels for 24 hours (LA_{eq24h} Ragettli et al. J Expo Sci Environ Epidemiol 2016), expressed in restricted cubic splines

Outcomes Mild or severe preeclampsia

Analysis

Multilevel logistic regression model with participants as a random effect.

Models adjusted for traffic pollution (O_3 , NO_2 , $PM_{2.5}$ from Environment Canada), neighbourhood walkability (Robitaille et al. Cahiers de géographie du Québec 2011), maternal age, parity, multiple pregnancy, comorbidity, socioeconomic deprivation (Pampalon et al. Chronic Dis Can 2000), and year of delivery.

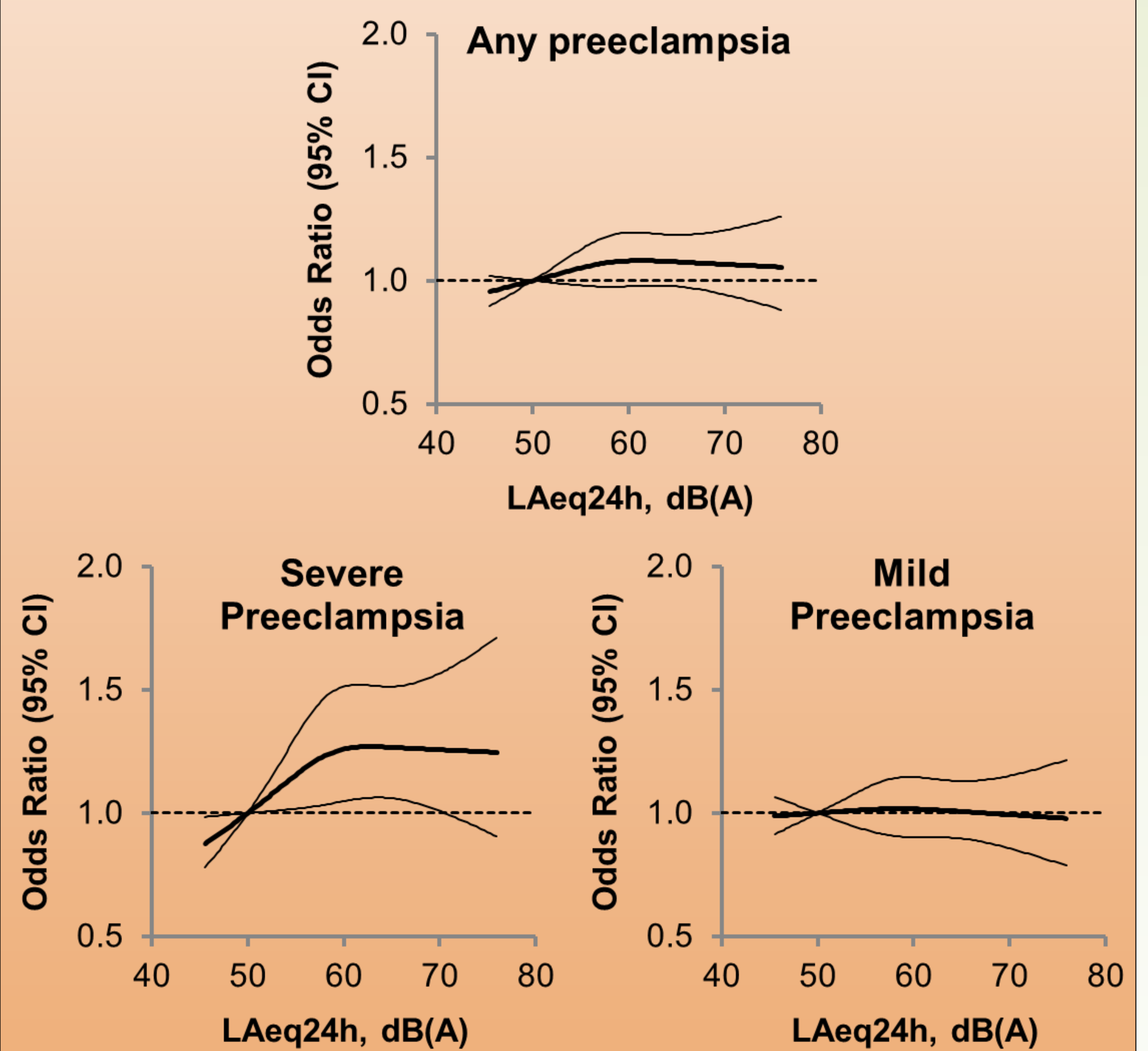
3 Prevalence of preeclampsia, per 1,000 women

LA_{eq24h} dB(A)	Preeclampsia		
	Any (N=9,680)	Severe (N =2,988)	Mild (N = 6,692)
<50.0	27.9 (19.8-36.1)	4.4 (1.2-7.7)	23.5 (16.0-31.0)
50.0-54.9	32.9 (31.4-34.5)	9.2 (8.4-10.0)	23.7 (22.4-25.0)
55.0-59.9	36.8 (35.8-37.8)	11.4 (10.8-12.0)	25.4 (24.6-26.3)
60.0-64.9	36.4 (35.1-37.8)	11.8 (11.0-12.6)	24.6 (23.5-25.7)
≥65.0	37.9 (34.4-41.3)	12.6 (10.6-14.7)	25.2 (22.4-28.0)

5 Conclusion

Environmental noise pollution may be a risk factor for preeclampsia, particularly severe or early onset preeclampsia.

4 Association between noise and preeclampsia



Bold line = odds ratio; lighter lines = 95% confidence interval

