

Results

After adjusting for individual sociodemographic factors and daytime/nighttime period, the personal exposure to noise was high during trips compared with activity places. This exposure was also higher at the workplace and in other activity places, compared to the place of residence. After adjusting for individual factors and daytime/nighttime periods, individual noise exposure was positively associated with brachial blood pressure and aortic blood pressure.

Conclusions

Depending on their activity patterns and transport modes used, hypertensives are exposed to very different levels of noise during their daily lives. A better protection from noise for public transport and active mobility during trips may be favorable for cardiovascular health.

Key messages

- Personal exposure to noise was highest during trips, compared with activity places
- Individual noise exposure is positively associated with brachial and aortic blood pressure

Mobility, personal exposure to noise, and blood pressure in hypertensives in the Paris region

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Background

In response to several short-term risk factors such as noise, higher levels of blood pressure in hypertensives increase the risk of triggering cerebrovascular and cardiovascular events. Aortic blood pressure, which is physiologically lower than brachial blood pressure, may be more susceptible to show variations related to stress factors such as noise. Very few studies have analyzed the short-term stimulus-response relationship in daily activities and trips between individual exposure to noise and brachial and aortic blood pressure in hypertensives.

Methods

In the RECORD-Multisensors Study, 16 hypertensive participants wore a personal noise dosimeter and a holter for 24 hours for blood pressure as well as a GPS, an accelerometer, and a galvanic skin response (GSR) sensor. Multilevel regression analysis, applied to data at the activity place/trip level or at the blood pressure measurement level, with a random effect at the individual level, was conducted.