

**Aim:** To characterize behavioural and cardiorespiratory changes in a new, intermittent low-level lead exposure animal model.

**Introduction:** Lead (Pb) is a cumulative toxic metal affecting all body systems that are particularly vulnerable during developmental phase. Permanent lead exposure has been defined as a cause of behavioural changes, cognitive impairment, sympathoexcitation, tachycardia, hypertension and autonomic dysfunction. However, no studies have been performed to describe a new, intermittent low-level lead exposure profile, that has been increased in the past years.

**Methods:** Foetuses were intermittently (PbI) exposed to water containing lead acetate (0.2%, w/v) throughout life until adulthood (28 weeks of age). A control group (without exposure, CTL), matching in age and sex was used. At 26 weeks, behavioural tests were performed for anxiety (Elevated Plus Maze Test) and locomotor activity (Open Field Test) assessment. Blood pressure (BP), electrocardiogram (ECG), heart rate (HR) and respiratory frequency (RF) rates were recorded at 28 weeks of age. Baroreflex gain (BRG) and chemoreflex sensitivity (ChS) were calculated. Student's *T*-test was used (significance  $p < 0.05$ ) for statistical analysis.

**Results:** An intermittent lead exposure causes hypertension (increased diastolic and mean BP), increased RF, decreased baroreflex function and increased ChS, without significant changes in HR, when compared to CTL group. Regarding behavioral changes, the intermittent lead exposure model showed an anxiety-like behaviour without changes in locomotor activity.

**Conclusion:** Intermittent low-level lead exposure induces changes on the cardiorespiratory profile characterized by hypertension, carotid chemosensitivity and baroreflex impairment. According to behavioural tests results, this study also shows that the exposure to lead during developmental phases causes anxiety in adult animals without locomotor activity impairment.

In summary, this study brings new insights on the environmental factors that influence nervous and cardiovascular systems during development, which can help creating public policy strategies to prevent and control the adverse effects of Pb toxicity.

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## PS120

### Antihypertensive effects of two novel dihydropyridine derivatives

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**Aim:** Treatment of hypertension.

**Introduction:** Mebudipine and dibudipine are two novel derivations of dihydropyridine (DHP) Ca<sup>2+</sup> channel blockers. Previous studies have shown that these two compounds have relaxant effects on vascular smooth muscles. In addition, DHPs are able to reduce contraction force of cardiac muscle in rat. In this study we decided to evaluate the antihypertensive effects of these two novel DHPs in hypertensive rat.

**Methods:** Male Sprague-Dawley rats were used in the study (8–10 weeks old). The rats were randomly divided to 4 groups of 10 rats (one control and 3 test groups). Blood pressure was measured by Tail cuff method. Left kidneys of the rats were removed by nephrectomy and sodium chloride 1% was added to the drinking water of animals and desoxycorticosterone acetate 20 mg/kg (SC) were injected twice a week. During and after 4 weeks, blood pressure of animals was evaluated to confirm the hypertension. Blood pressure of the animals was measured before i.p. injection of mebudipine and dibudipine (1–8 µmole/kg) and 2 min after the drug administration.

**Results:** Mebudipine and dibudipine significantly reduced the systolic blood pressure. Mebudipine was more effective than dibudipine and nifedipine in hypertensive animals and has significant results.

**Conclusion:** Previous studies showed that i.p. injection and oral usage of mebudipine and dibudipine decrease systolic hypertension in normotensive animals, on the other hand vasodilation effects of DHPs have been proved on aorta. Both novel drugs showed significant reduction in systolic blood pressure in hypertensive animals and mebudipine was more potent than dibudipine and nifedipine (as a standard drug uses). It is remarkable that, two new DHPs have similar efficacy and safety profile, but have higher efficacy compared to nifedipine in present study. The brilliant point is that DHPs as calcium channel blockers are more effective in hypertensive animals compared to normotensive animals.

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## PS062

### Biological processes of polyphenols in the cardiovascular system: A bioinformatics approach

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**Aim:** In this study, we aimed to evaluate the cardiovascular system-related biological processes (BP) modulated by polyphenols in rodents and humans, and to verify which of them are specie-

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