

MEETING ABSTRACT

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EHMTI-0219. Quantitative histological examinations of inter- and intraindividual differences in the dural vasculature of the mouse

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Introduction

To examine both migraine and pulmonary hypertension (PH) we developed a hypoxic mouse model. Under hypoxic conditions (four weeks at 10% O₂) mice develop typical symptoms of PH, characterized by an increased muscularization of arterial blood vessels in the lung. The vessel remodeling can be prevented by the chronic application of 5-HT_{2B} receptor antagonists. We found that hypoxic mice also develop increased sensitivity towards the 5-HT₂ receptor agonist meta-Chlorophenylpiperazine (mCPP). In contrast to the control group (normoxic mice kept at 20% O₂) at low doses of 1 µg / kg body weight, mCPP triggers plasma protein extravasation (PPE) in the dura mater in hypoxic mice. Dural PPE is a quantifiable indicator of migraine-like events in animal models.

Aims

The sensitization towards mCPP may coincide with structural remodeling processes in arterial blood vessels of the dura mater, possibly exhibiting similarities to vascular alterations in the lung. A prerequisite in the investigation of vascular alterations in the dura mater is a thorough understanding of the normal organization of dural vasculature in mice and of the extent of its normal biological variance.

Methods

Histological examinations of the length of dural vessels were performed to quantify and statistically analyze inter- and intraindividual differences.

Results

Interindividual differences: The arteriole total lengths are 15% far from the arithmetic mean.

Intraindividual differences: The difference in the length of arterioles represents 12% of the total length of the arterioles.

Conclusion

On the basis of these results examinations of dural vessel of hypoxic mice can be investigated.

No conflict of interest.

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