USE OF METHACHOLINE BRONCHOPROVOCATION TEST FOR THE DIAGNOSIS OF ASYMPTOMATIC SEVERE EQUINE ASThma

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INTRODUCTION

• Clinical examination and ancillary tests used in clinical routine are not sufficiently sensitive to diagnose horses in clinical remission of severe equine asthma (SEA).
• Methacholine bronchoprovocation test (MBT) is used for diagnosis of asymptomatic human asthma (Crapo et al., 2000). It has been used in some research protocols in horses but no study has examined its potential value for clinical diagnostic.
• Aim of the study: To assess whether the methacholine bronchoprovocation test is an applicable and repeatable clinical test to distinguish control horses and SEA horses in clinical remission.

MATERIAL & METHODS

• Six horses with history of SEA (4 mares and 2 geldings, aged 18.8 ± 3.9 years) in clinical remission and 6 controls (4 mares and 2 geldings, aged 8 ± 4.5 years).
• MBT realized with methacholine nebulization at increasing concentrations (Figures 1).
• The following ancillary tests were realized:
  - Pulmonary function test with impulse oscillometry system (Figures 2).
  - Tracheal mucus and tracheal septum thickness scores
  - BAL cytology
• Repeatability and effect of 1 week in barn environmental conditions were tested.

RESULTS

• Good feasibility and significant repeatability.
• Before the stay in stalls, SEA and controls horses could not be differentiated by the MBT.
• After a 7-days period of straw and hay exposure, the bronchial hyperresponsiveness was increased in both SEA and control horses, while the other clinical or functional parameters were not significantly affected.
• The 7-days period in stalls resulted in a significant difference in bronchoreactivity between SEA and control horses.

CONCLUSION

• Methacholine BPT does not permit to differentiate control and asymptomatic SEA horses in clinical remission, unless the horses have been kept in stalls.
• These results suggest that the mechanisms underlying the bronchial hyperresponsiveness in asthma differ between human and equine patients.
• Perspectives:
  - The BPT may be used to detect asymptomatic severe asthmatic horses after a light environmental challenge;
  - Further researches are needed to assess the clinical interest of BPT for subclinical mild-moderate equine asthma patients.

REFERENCES