EFFECTS OF TADALAFIL (PDE5 INHIBITOR) ON OVALBUMIN-INDUCED INFLAMMATION IN GUINEA PIGS

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PDE5 inhibition is widely used in the therapy of erectile dysfunction, pulmonary hypertension as well as other cardiovascular diseases. However, the expression of PDE5 was confirmed in several immune cells, suggesting its potential role in allergic inflammation. The aim of this study was to evaluate the effect of one-week administration of selective PDE5 inhibitor tadalafil in experimentally induced allergic inflammation in guinea pigs and to compare it with the effects of selective PDE4 inhibition by roflumilast.

24 male adult guinea pigs, divided into 4 groups, have been used in the study. Control group has been left without sensitization. The latter 3 groups have been sensitized with ovalbumin over two weeks and thereafter treated intraperitoneally for 7 days with tadalafil at the daily dose of 1.0 mg/kg b.w., with roflumilast (PDE4 inhibitor) at the same dose, or with vehiculum, respectively.

Sensitization with ovalbumin has led to significant increase in *in vivo* and *in vitro* airway reactivity. Tadalafil reduced both specific airway resistance measured in whole-body double-chamber plethysmograph after nebulisation of histamine, and *in vitro* airway reactivity to cumulative doses of acetylcholine in tracheal and lung tissue strips using organ bath method. These changes have been associated with suppression of haematological markers of inflammation and apoptosis.

Selective PDE5 inhibition seems to play a significant role in allergic airway inflammation. However, its anti-inflammatory potential needs a further testing.

This work was supported by Grant MZ2012/35-UKMA-12, Grant APVV 0305-12, Grant VEGA 1/0030/11, and by project UK/159/2013.