

M₃ MUSCARINIC RECEPTORS IN PERIPHERAL LUNG PARENCHIMA OF PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Acetylcholine is the primary parasympathetic neurotransmitter in the airways and is traditionally associated with inducing airway smooth muscle contraction and mucus secretion. Anticholinergics constitute a particularly important bronchodilator therapy in chronic obstructive pulmonary disease (COPD) even if the pharmacological characterization of muscarinic receptors in human lung have not been investigated in detail. Recent evidence indicates that M₃ receptors are the primary subtypes responsible for bronchial and tracheal smooth muscle contraction. The aim of this study is to investigate the presence of M₃ muscarinic receptors in peripheral lung parenchyma in COPD patients by using radioligand binding assays. These data were also analyzed in age-matched smokers with normal lung function (control subjects). The affinity of M₃ receptors was similar in COPD patients compared with control group. On the contrary the receptor density (B_{max}) expressed as fmol/mg protein was significantly increased in COPD patients compared with the control subjects. In conclusion, these data show an increase of M₃ muscarinic receptors expressed in lung parenchyma of COPD patients suggesting important implications for anticholinergic therapy in the future by using selective drugs with a lower profile of side effects.