

# Asma professionale: il ruolo dell'infiammazione e del rimodellamento delle vie aeree sulla persistenza dei sintomi e dell'iperresponsività bronchiale

A. SIRACUSA, ALESSANDRA MARABINI\*, MARIA LAURA PACE\*, CINZIA TACCONI\*, ILENIA FOLLETTI, A. BUSSETTI, P. MAESTRELLI\*\*

Allergologia Professionale e Ambientale, Dipartimento di Medicina Clinica e Sperimentale, Università degli Studi di Perugia

\* Medicina del Lavoro e Tossicologia Professionale e Ambientale, Dipartimento di Medicina Clinica e Sperimentale, Università degli Studi di Perugia

\*\* Dipartimento di Medicina Ambientale e Sanità Pubblica, Università degli Studi di Padova

## KEY WORDS

Asthma; occupational diseases; airway inflammation; airway remodelling

## SUMMARY

**«Occupational asthma: the role of airways inflammation and remodelling in persistent respiratory symptoms and bronchial hyper-responsiveness».** Background: *Until the late 1970s occupational asthma (OA) was considered reversible once patients were removed from exposure. Unfortunately, respiratory symptoms and non-specific bronchial hyper-responsiveness (NSBH) persist in about two-thirds of patients for years after removal from the offending agent.* Objectives and methods: *This review focuses on the role of airways inflammation and remodelling in persistent respiratory symptoms and NSBH after cessation of occupational exposure.* Results: *Even though cessation of exposure does not always result in remission of OA, symptoms, airways calibre and NSBH do improve in many patients. Although improvements in FEV<sub>1</sub> and NSBH tend to reach a plateau 1-2 years after workers leave exposure, reversing NSBH may take much longer and respiratory symptoms and NSBH can persist in subjects removed from exposure for >10 yrs. Long-term treatment with inhaled corticosteroids (ICS) induces a small but significant improvement in respiratory symptoms and in quality of life and a decrease in NSBH. Prolonged exposure and respiratory symptoms, marked airway obstruction and NSBH, high total cell, eosinophil and neutrophil counts in bronchoalveolar lavage fluid, a strong reaction during specific inhalation challenge, and delayed treatment with ICS have been identified as prognostic factors of unfavourable outcome. If exposure persists, OA tends to deteriorate in many patients but regular long-term treatment with ICS and long-acting  $\beta_2$ -agonists seems to stabilize the outcome. Soon after the last exposure inflammatory cell infiltrates, including eosinophils, and increased thickness of sub-epithelial collagen have been observed. When time since removal from exposure was longer, persistence of respiratory symptoms and NSBH was associated with airway inflammation, remodelling and hypersensitivity to the offending agent. Thickness of sub-epithelial collagen and specific airway sensitivity were reduced after prolonged non-exposure to isocyanates, although NSBH and airway inflammation persisted.* Conclusions: *Pathologic features are similar in OA and non-occupational asthma. The main factors of favourable outcome are early removal from exposure and a mild airway obstruction and NSBH at diagnosis. Persistence of airway inflammation years after removal from exposure suggests this process may become independent of the offending agent. The role of remodelling on persistence of OA needs to be clarified further.*

Pervenuto il 2.9.2003 - Accettato il 3.5.2004

Corrispondenza: Prof. Andrea Siracusa, Via delle Cove 1, 06126 Perugia - Tel. 0744205554 - Fax 0744205762

E-mail asiracus@unipg.it