

ASSOCIATIONS OF THE PLASMA INTERLEUKIN 6 (IL-6) LEVELS WITH
DISABILITY AND MORTALITY IN THE ELDERLY IN THE
TREVISO LONGEVA (TRELONG) STUDY

M. GALLUCCI^{a,*}, G.P. AMICI^a, F. ONGARO^b, G.B. GAJO^d, S. DE ANGELI^d,
G.L. FORLONI^e, D. ALBANI^e, F. PRATO^e, L. POLITO^e, A. ZANARDO^c and C. REGINI^a

^aARGel, Interdisciplinary Geriatric Research Association, Trento Trieste Aven. 19, I-31100 Treviso, ^bDepartment of Statistics University of Padova, Via Cesare Battisti, 241, I-35121 Padova, ^cClinical Chemistry Laboratory Regional Hospital Treviso, Piazza Ospedale, 1, I-31100 Treviso, ^dTransfusional Center, Regional Hospital Treviso, Piazza Ospedale, 1, I-31100 Treviso, ^eMario Negri Institute for Pharmacological Research, Via Eritrea, 62, I-20157 Milano, Italy

*Corresponding author:

Phone/Fax: +(39-0422)-231-791;

E-mail: m_gallucci@tin.it

SUMMARY

IL-6 expression is regulated by the interplay of several transcriptional and hormonal factors, including sex steroids and glucocorticoids. In late life IL-6 expression increases as a result from loss of the normally inhibiting sex steroids. IL-6 is one of several proinflammatory cytokines. It has been proposed that many chronic inflammatory diseases are the result of a dysregulation of IL-6 expression. In this work we demonstrate that increased IL-6 levels in elderly are associated with higher disability and mortality, also independently of age and comorbidity.

Keywords: Interleukin-6; disability of elderly; mortality; comorbidity in elderly

INTRODUCTION

IL-6 is a pleiotropic cytokine produced by many different types of cells including immune and also many non-immune cells and organs (Bethin et al., 2000; Path et al., 2001). The biological functions of IL-6 include the regulation of proliferation, differentiation and activity of a wide variety of cell types (Ershler and Keller, 2000) and participation in neuro-endocrine and immune system homeostasis (Bethin et al., 2000). IL-6 plays a role in acute-phase reactions, in the balancing of the pro-inflammatory/anti-inflammatory pathways and in the stress response (Xing et al., 1998).

An age-related increase of IL-6 concentration has been found in serum, plasma and supernatants of mononuclear blood cell cultures from elderly people and centenarians (Ershler and Keller, 2000). Some population-based studies would identify the magnitude of IL-6 serum level as a reliable marker for functional disability and as a predictor mortality

among elderly (Cohen et al., 1997; Ferrucci et al., 1999; Harris et al., 1999; Volpato et al., 2001). The aim of this study was to verify mutual relations between IL-6 serum level, disability and mortality in a sample of elderly people over the age of 70 years, living in Treviso. This study is part of the “TREVISO LONGEVA” (TRELONG) Targeted Health Research Project, supported by the Veneto Region, Treviso Municipality and Province, Cassamarca Foundation and other organizations. ARGel, Interdisciplinary Geriatric Research Association, collected the data consisting of biological, medical, social, economic, demographic and quality of life data in 670 elderly 70 years old and over in the city of Treviso, a representative city of North-East of Italy (Gallucci, 2002, 2004; Gallucci et al., 2007).