

# Immunoglobulin free light chain ratio is an independent risk factor for progression of smoldering (asymptomatic) multiple myeloma (MKG414)

Angela Dispenzieri, Robert A. Kyle, Jerry A. Katzmann, Terry M. Therneau, Dirk Larson, Joanne Benson, Raynell J. Clark, L. Joseph Melton III, Morie A. Gertz, Shaji K. Kumar, Rafael Fonseca, Diane F. Jelinek, S. Vincent Rajkumar

Blood 2008 **111**(2):785-789

## Introduction

Smoldering multiple myeloma (SMM) is an asymptomatic plasma cell disorder with a high risk of progression to active multiple myeloma (MM). It is important to be able to identify those patients at a high risk of progression. A large study conducted by the Mayo Clinic in the US investigated whether an abnormal serum free light chain (FLC) ratio indicates an increased risk of progression.

## Methods

Baseline serum samples obtained within 30 days of diagnosis were available in 273 patients with SMM seen at the Mayo Clinic between 1970 and 1995. Patients were followed for a median time of 6 years (range 0-29). During this period of observation MM developed in 57% of individuals.

## Results

The results demonstrated that "an increasingly abnormal FLC ratio was associated with a higher risk of progression to active MM." 90% of the cohort study had an abnormal serum FLC ratio. The best cut off-point for progression was found to be a serum FLC ratio less than 0.125 or greater than 8. The serum FLC ratio was independent of other known risk factors.

The authors constructed a risk-stratification model incorporating 3 risk factors; bone marrow plasmacytosis greater than or equal to 10%; serum M spike greater than or equal to 3g/dL; and FLC ratio less than 0.125 or greater than 8. When death was corrected for as a competing risk factor, the risk of progression at 10 years was 35% in patients with one risk factor, 65% in those with 2 risk factors and 84% in those with 3 risk factors.

## Discussion

The serum FLC ratio has already been shown to be a powerful indicator in monoclonal gammopathy of undetermined significance (MGUS), plasmacytoma, AL amyloidosis and MM. This study proved that this is also the case in SMM patients.

The authors of the study hypothesise as to why an abnormal serum FLC ratio is a predictor of poorer prognosis and suggest that patients with an abnormal serum FLC ratio have immunoglobulin heavy chain translocations.

The authors conclude that the serum FLC ratio should be used as another variable to help define MGUS, SMM and active MM, and how an abnormal serum FLC ratio also provides valuable prognostic information in each of these subsets of patients.

"While genetic profiles or specific genetic markers may someday make these variables obsolete, that day has not arrived. Until it does, the baseline serum immunoglobulin FLC ratio provides valuable prognostic information for each of these entities."



DTP270

Binding Site Ltd  
P.O. Box 11712, Birmingham, B14 4ZB, UK.  
Tel: +44 (0)121 436 1000 Fax: +44 (0)121 430 7061  
info@bindingsite.co.uk  
www.freelite.co.uk

Binding Site  
THE BINDING SITE