



HAL
open science

Hyperlipidemic myeloma

Alessandro Gozzetti, Marzia Defina, Monica Bocchia, Francesco Lauria

► **To cite this version:**

Alessandro Gozzetti, Marzia Defina, Monica Bocchia, Francesco Lauria. Hyperlipidemic myeloma. *Annals of Hematology*, 2010, 89 (9), pp.939-940. 10.1007/s00277-010-0905-5 . hal-00535125

HAL Id: hal-00535125

<https://hal.science/hal-00535125>

Submitted on 11 Nov 2010

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Hyperlipidemic myeloma

Alessandro Gozzetti · Marzia Defina · Monica Bocchia ·
Francesco Lauria

Received: 5 January 2010 / Accepted: 13 January 2010 / Published online: 2 February 2010
© Springer-Verlag 2010

Dear Editor,

We read with great interest the recent paper by Misselwitz B et al. [1] in which they described a 53-years-old woman with hyperlipidemic myeloma treated with allotransplant. We have a comment to make. The authors reviewed the literature, and very interestingly described possible mechanisms leading to hyperlipidemia, suggesting the possible role of the monoclonal paraprotein on lipid degradation. They also reported about successful anti-myeloma therapy in reducing hyperlipidemia, but they did not mention on the activity of amino bisphosphonates (N-BPs) on serum lipids.

N-BPs represent one of the most important advances in prevention and treatment of bone metastases, their action is mainly due to inhibition of enzymes of the intracellular mevalonate pathway in the osteoclast. Some N-BPs, such as ibandronate, potently inhibit squalene synthase and cholesterol biosynthesis in rats; but also alendronate and pamidronate inhibit sterol biosynthesis without affecting this enzyme, suggesting potential inhibition of a target upstream of squalene synthase in the mevalonate pathway [2].

Zoledronic acid (ZA) represents a novel N-BP which also has antitumoral activity and is being widely used in multiple myeloma. We recently reported [3] on 26 patients with smoldering myeloma studied at diagnosis: 16 were

treated with ZA (4 mg) at baseline and at months 1, 2, 4, and 6. The remaining ten served as controls. In all subjects, total cholesterol (TC), triglycerides (TGs), high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol (LDL-C), were measured at baseline and after 1, 3, and 6 months. In treated patients, we observed a progressive and significant reduction of TC, with a maximum decrease of 13% at 6 months. Moreover, LDL-C decreased by 21% at 6 months, while no significant difference was appreciated in HDL-C and TGs. Also, the indexes of cardiovascular risk improved after ZA administration: TC/HDL-C ratio progressively decreased by 17% and HDL-C/LDL-C ratio increased by 36%, showing an effect that appears to be cumulative.

Evidence is accumulating in the literature for a link between vascular and bone disease. BPs inhibits bone resorption and is used in the treatment of osteoporosis, whereas statins inhibit cholesterol biosynthesis and are used for the treatment of atherosclerosis. Studies of BPs and statins at the cellular, molecular, and end-organ levels suggest that the mechanism of actions of these two classes of drugs at the cellular level may not be mutually exclusive. There are some early clinical data to complement these findings, suggesting that statins increase bone density. Moreover, etidronate, pamidronate, and clodronate have been shown to inhibit the development of experimental atherosclerosis; and one proposed mechanism for this action is inhibition of arterial calcification and lipid accumulation, degradation of atherogenetic LDL-C, and reduced foam cell formation.

We think that this could be an interesting issue in hyperlipidemic myeloma treatment.

A. Gozzetti (✉) · M. Defina · M. Bocchia · F. Lauria
Division of Hematology and Transplants,
Policlinico “Santa Maria alle Scotte”, University of Siena,
Viale Bracci 16,
53100 Siena, Italy
e-mail: gozzetti@unisi.it

References

1. Misselwitz B, Goede JS, Pestalozzi BC, Schanz U, Seebach JD (2009) Hyperlipidemic myeloma: review of 53 cases *Ann Hematol* (in press)
2. Amin D, Cornell SA, Gustafson SK, Needle SJ, Ullrich JW, Bilder GE, Perrone MH (1992) Bisphosphonates used for the treatment of bone disorders inhibit squalene synthase and cholesterol biosynthesis. *J Lipid Res* 33:1657–1663
3. Gozzetti A, Gennari L, Merlotti D, Salvadori S, De Paola V, Avanzati A, Franci B, Marchini E, Tozzi M, Campagna MS, Nuti R, Lauria F, Martini G (2008) The effects of zoledronic acid on serum lipids in multiple myeloma patients. *Calcif Tissue Int* 82 (4):258–262