Urinary proteins in multiple myeloma: strong correlation with the indices of tumor burden

Urinary α1-microglobulin (α1M), IgG and albumin (alb) are more sensitive parameters of renal dysfunction than creatininemia and uremia. We report the history of two multiple myeloma patients in whom variations of urinary proteins strictly correlate with those of tumor burden indices, suggesting a possible new role for these proteins.

GL, a 54-year-old white man, with a previous history of monoclonal gammopathy of unknown significance (MGUS) IgGκ, came to our attention in February 2000 because of progression of his disease into plasma cell leukemia. Laboratory tests showed: bone marrow plasmocytosis (BMPC) of 70%, monoclonal component (MC) of 4.8 g/dL, serum β2-microglobulin (β2M) of 7,570 mg/dL, and alteration of urinary proteins (Figure 1). He underwent chemotherapy with 2 cycles of pulse-VAD and two DCEP (dexamethasone, cyclophosphamide, etoposide, and cisplatin), without response. In fact, disease parameters worsened (β2M 8,139 mg/dL, BMPC 90%, MC 6.1 g/dL), and contemporaneously a worsening of urinary protein values was recorded (Figure 1). He started thalidomide and, after three months, his performance status improved with an amelioration of disease parameters (β2M 2534 mg/dL, BMPC 4%, MC 3.4 g/dL) and urinary proteins (Figure 1).

PL, a 50-year old white man, was referred to us because of multiple myeloma IgGκ at clinical stage II A, which had progressed from a MGUS lasting ten years. He received a high dose protocol of chemotherapy and an autologous transplantation, conditioned with high dose melphalan, and obtained a very good partial response. Seventeen months after transplantation his condition was very good (β2M 3,900 mg/dL, BMPC 90%, MC 6.1 g/dL), and contemporaneously a worsening of urinary protein values was recorded (Figure 1). He started thalidomide and, after three months, his performance status improved with an amelioration of disease parameters (β2M 8,139 mg/dL, BMPC 90%, MC 6.1 g/dL), and contemporaneously a worsening of urinary protein values was recorded (Figure 1). He started thalidomide and, after three months, his performance status improved with an amelioration of disease parameters (β2M 2534 mg/dL, BMPC 4%, MC 3.4 g/dL) and urinary proteins (Figure 1).

Renal involvement in multiple myeloma is usually evaluated and monitored with serum parameters which do, however, have a low sensitivity and are consequently inadequate for identifying initial renal damage. Several previous reports have demonstrated an important role of urinary proteins in better definition of renal damage, and in identifying those patients who deserve more accurate examination (renal biopsy).1,4

The cases described here shed new light on a possible further use of urinary parameters as markers of disease progression. In fact, both patients showed a parallel behavior of disease parameters (β2M, MC, BMPC), and urinary markers of renal function (α1M, IgG, albumin). On the basis of this close correlation, it may be hypothesized that urinary proteins are not only reliable indicators of renal involvement, but also indices of disease. In that case, they could be used, together with β2M, MC, and BMPC, for the staging and the monitoring of multiple myeloma.1,4

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References