Lenalidomide-Mediated NK Cells Expansion In Elderly Multiple Myeloma Patients

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High efficacy of lenalidomide (R) in Multiple Myeloma (MM) is related to its direct anti-proliferative effect but it has also been supposed to indirectly increase responses, upregulating natural killer (NK) cells.

We evaluated the effect of low dose (LD)-R on circulating NK cells in 16 MM patients (12 M/4 F; median age 77 years, 56-86). Eight of them (median age 81, 80-87) were newly diagnosed MM patients (NDMM) receiving LD-R and LD prednisone (R: 10 mg on alternate days; P: 15 mg/day) as frontline therapy; the remaining (median age 67, 60-73) received continuous LD-R (10 mg on alternate day) as maintenance after autologous stem cell transplantation (ASCT).

After a median follow up of 15 months (range 3-28), in NDMM patients the overall response rate was 88%, including 1 complete remission (CR), 2 very good partial remission (VgPR), 4 PR, and a median reduction in monoclonal protein of 91%. After a median follow-up of 26 months (range 12-50) from the beginning of LD-R maintenance after ASCT, patients in CR maintained their CR, and patients in VGPR improved response except one who showed disease progression.

All MM patients showed progressive increase in the percentage of circulating CD56+CD3- NK cells, reaching a plateau maintained until month +15. Median percentage of NK cells was 4% before treatment versus 15%, 19.5%, 24%, 28%, 27.5% and 28% at +1, +3, +6, +9, +12 and +15 months, respectively.

Our preliminary data show that lenalidomide may partly mediate its anti-MM effect by modulating NK cell number and function.