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# Multiple myeloma: the biology, the clinic, and the future

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The landscape of myeloma therapy has been changing quickly over the last 15 years, and when looking at drugs currently in development in clinical trials we can expect further "revolutions" in the near future. Immunomodulatory substances are at present the favored "backbones" of myeloma therapy, with new drugs like the antimyeloma antibodies evaluated in combination with lenalidomide/dexamethasone or the new oral proteasome inhibitor ixazomib evaluated in combination with thalidomide/dexamethasone. Such "chemotherapy-free" triple combinations have the potential to evolve to standards of care in relapsed disease. Just recently, a favorable outcome was reported for patients receiving therapy with carfilzomib/lenalidomide/dexamethasone when compared with lenalidomide/dexamethasone alone (ASPIRE study) and also pomalidomide was evaluated in triple combinations (e.g., combined with bortezomib/dexamethasone), with high response rates reported in relapsed/refractory disease.

In this issue of *MEMO* we have tried to highlight issues important for the clinician. Wolfgang and Ella Willenbacher [1] investigate if maintenance treatment should be recommended for every myeloma patient. We know that disease eradication is not feasible in myeloma, with the exception of allogeneic transplantation (possibly). Do we need maintenance treatment to control the malignant clone? Is there a level of residual myeloma cells, under which the malignant clone loses its stromal support and stays inert? Under latter circumstances treatment intensification could be the way to go. Michael Fillitz et al. [2] will address the question if more could be better in newly diagnosed myeloma patients. At least in younger patients, high-dose therapy with autologous transplantation seems to remain an indispensable part of first-line myeloma treatment.

Myeloma patients with renal impairment represent a population with poorer prognosis in general and a higher propensity for complications under treatment. Dose adaptions have to be considered and supportive care, especially infection prophylaxis, must be implemented. Daniel Lechner [3] will focus on this population of patients in his short review.

Finally, coming back to emergent therapies, Heinz Ludwig et al. [4] will give an overview on new drugs in development to draw a vision of myeloma treatment in 2020. We expect that a plethora of new drugs will enter the clinic and it will be challenging to select the optimal combinations to maximize efficacy while controlling toxicity. Given the biologic heterogeneity of multiple myeloma [5], genetic or molecular markers might become more important in the future than they are now to allocate patients to defined treatment protocols. We as authors hope that the readers enjoy the contributions and eventually gain inspirations for their daily clinical routine.

**Conflict of interest**

The author participated in advisory boards for Celgene, Novartis and Takeda and held presentations for Janssen-Cilag, Celgene, and Amgen.

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