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## 多發性骨髓瘤標靶藥物及免疫治療的最新進展

### The Landscape of Myeloma Targeted Therapy and Immunotherapy

時間：113 年 6 月 22 日(星期六) 13:30~17:30

地點：臺北榮民總醫院 致德樓第六、七會議室

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13:30-13:40	<b>Opening Remarks</b>	蕭樑材醫師 Liang-Tsai Hsiao
	座長：蕭樑材 醫師 (Liang-Tsai Hsiao)	
13:40-14:20	多發性骨髓瘤之臨床簡介 Introduction of Multiple Myeloma	王浩元醫師 Hao-Yuan Wang
14:25-15:05	現行台灣多發性骨髓瘤治療策略 Present Treatment of Multiple Myeloma in Taiwan	柯博伸醫師 Po-Shen Ko
15:10-15:35	<b>Coffee Break</b>	
	座長：劉嘉仁 醫師 (Chia-Jen Liu)	
15:40-16:20	多發性骨髓瘤標靶藥物及免疫治療的最新進展 The Landscape of Myeloma Targeted Therapy and Immunotherapy	劉耀中醫師 Yao-Chung Liu
16:25-17:05	免疫治療在多發性骨髓瘤的臨床運用 Clinical Application of Immunotherapy in Multiple Myeloma	蔡淳光醫師 Chun-Kuang Tsai
17:10-17:30	Panel Discussion	All

## **Introduction of multiple myeloma**

### **多發性骨髓瘤之臨床簡介**

**Hao-Yuan Wang**

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Multiple myeloma (MM) is a hematologic malignancy characterized by the abnormal proliferation of plasma cells within the bone marrow. It represents the second most common hematologic cancer, accounting for approximately 1% of all cancers and 10% of hematologic malignancies. The disease typically arises in older adults, with a median age at diagnosis around 70 years, although it can occur in younger individuals.

The pathogenesis of MM involves the clonal expansion of malignant plasma cells, which produce excessive amounts of abnormal monoclonal immunoglobulins (M-proteins). These abnormal plasma cells accumulate in the bone marrow, leading to bone destruction, marrow failure, and the systemic manifestations of the disease. Common clinical features include bone pain, fractures, anemia, hypercalcemia, renal insufficiency, and increased susceptibility to infections.

Diagnosis of MM typically involves a combination of laboratory tests, imaging studies (such as X-rays, CT scans, or MRI), and bone marrow biopsy to confirm the presence of abnormal plasma cells. The disease is staged based on various factors, including the extent of bone disease, the level of monoclonal protein, and the presence of kidney dysfunction.

Treatment options for MM have expanded significantly in recent years, with advancements in chemotherapy, immunotherapy, targeted therapy, and stem cell transplantation. While MM remains largely incurable, these treatment modalities have improved outcomes and prolonged survival for many patients, particularly in the era of novel agents such as proteasome inhibitors, immunomodulatory drugs, and monoclonal antibodies. Ongoing research continues to explore new therapeutic approaches aimed at achieving deeper and more durable responses, with the ultimate goal of improving the quality of life and survival for individuals affected by this challenging disease.

## **Present treatment of multiple myeloma in Taiwan**

### **現行台灣多發性骨髓瘤治療策略**

**Po-Shen Ko**

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In Taiwan, the treatment landscape for multiple myeloma (MM) mirrors global standards, with a multidisciplinary approach combining chemotherapy, immunotherapy, targeted therapy, and stem cell transplantation.

Chemotherapy remains a cornerstone of MM treatment in Taiwan, with regimens incorporating agents like bortezomib, lenalidomide, and dexamethasone being commonly used in both newly diagnosed and relapsed/refractory settings. These therapies aim to induce remission, control disease progression, and alleviate symptoms.

Immunotherapy has gained prominence in recent years, with the approval and adoption of monoclonal antibodies targeting CD38, such as daratumumab and isatuximab. These agents are used alone or in combination with chemotherapy, offering improved response rates and survival outcomes for MM patients.

In the realm of targeted therapy, proteasome inhibitors like bortezomib and carfilzomib play a crucial role in the treatment algorithm, inhibiting protein degradation pathways essential for MM cell survival. Additionally, immunomodulatory drugs (IMiDs) such as lenalidomide and pomalidomide exert direct antitumor effects and modulate the immune response against MM cells. For eligible patients, autologous stem cell transplantation (ASCT) remains a standard of care, offering the potential for deep and durable remissions. Maintenance therapy with lenalidomide post-ASCT has been shown to prolong progression-free survival in selected patients. Clinical trials evaluating novel agents, combination therapies, and personalized treatment approaches are ongoing in Taiwan, aiming to further optimize outcomes for MM patients. Collaborative efforts between clinicians, researchers, and healthcare institutions are instrumental in advancing the standard of care and improving the quality of life for individuals living with MM in Taiwan.

## **The landscape of myeloma targeted therapy and immunotherapy**

### **多發性骨髓瘤標靶藥物及免疫治療的最新進展**

**Yao-Chung Liu**

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“The Landscape of Myeloma Targeted Therapy and Immunotherapy” refers to the current status and advancements in the treatment of multiple myeloma using targeted therapy and immunotherapy approaches. Multiple myeloma is a type of cancer that affects plasma cells in the bone marrow.

Targeted therapy involves using drugs or other substances to specifically identify and attack cancer cells while causing less harm to normal cells. Immunotherapy, on the other hand, works by harnessing the power of the immune system to recognize and destroy cancer cells

In the context of multiple myeloma, targeted therapy options include proteasome inhibitors, such as bortezomib and carfilzomib, immunomodulatory drugs, such as lenalidomide and pomalidomide, and monoclonal antibodies that target specific proteins on the surface of myeloma cells. Immunotherapy approaches in myeloma include immune checkpoint inhibitors, chimeric antigen receptor (CAR) T-cell therapy, and cancer vaccines.

Advancements in these targeted therapy and immunotherapy approaches have significantly improved outcomes for patients with multiple myeloma, leading to higher response rates, longer remission periods, and improved overall survival rates. Ongoing research and clinical trials continue to explore new treatment combinations and strategies to further enhance the effectiveness of these therapies.

Overall, the landscape of myeloma targeted therapy and immunotherapy is rapidly evolving, offering new hope and improved treatment options for patients with this challenging disease.

## **Clinical application of immunotherapy in multiple myeloma**

### **免疫治療在多發性骨髓瘤的臨床運用**

**Chun-Kuang Tsai**

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“Clinical Application of Immunotherapy in Multiple Myeloma” explores the evolving landscape of immunotherapy as a treatment modality for this hematologic malignancy. Immunotherapy capitalizes on the intricate interactions between the immune system and cancer cells to enhance antitumor responses.

Monoclonal antibody (mAb) therapy targets specific antigens on myeloma cells, triggering immune-mediated cytotoxicity or inhibiting crucial signaling pathways. Notably, agents like daratumumab and elotuzumab have demonstrated efficacy, either alone or in combination with conventional treatments.

Immune checkpoint inhibitors, primarily targeting PD-1/PD-L1 interactions, aim to counteract the immunosuppressive tumor microenvironment. Although initial trials showed modest outcomes, combination strategies exhibit promise in enhancing efficacy.

Chimeric antigen receptor (CAR) T-cell therapy represents a groundbreaking approach, genetically engineering patients' T cells to target B-cell maturation antigen (BCMA), a prevalent myeloma cell marker. Clinical trials have shown remarkable responses, albeit with associated toxicities.

Vaccine-based immunotherapy seeks to prime the immune system against myeloma-specific antigens, with early trials showing encouraging immunologic responses.

Overall, immunotherapy offers diversified strategies beyond conventional treatments in multiple myeloma management. While challenges like treatment resistance and toxicities persist, ongoing research holds promise for optimizing efficacy and safety, potentially improving patient outcomes.