Module 2: Tracking MS: Tools that work (and those that don't)

Dr Friedemann Paul, Charité University Hospital in Berlin, Germany

Introduction

Dr Marcello Moccia:

Welcome to Module 2

Accurately monitoring disease progression is a key challenge in multiple sclerosis clinical practice. We have a set of clinical and imaging tools that we can potentially use, but each of these tools has limitations. Understanding these limitations can improve how confidently we use these tools and interpret changes over time.

In this module, I'm joined by Dr Friedemann Paul, who will explore the strengths and limitations of these approaches and how they can be used more effectively in routine clinical practice.

Current Approaches to Tracking Progression

Dr Friedemann Paul:

I am Friedemann Paul. I'm a Professor of Clinical and Neuroimmunology at Charité University Hospital in Berlin, Germany, and I run a large outpatient clinic for patients with multiple sclerosis and related disorders.

Today I will speak about tracking progression in multiple sclerosis: what works and what does not work.

We know that many patients with MS experience progression not only later during the disease course, but already during the first years after receiving a diagnosis of multiple sclerosis. This is something we now call PIRA — progression independent of relapse activity — and it occurs in up to 40–50% of patients with early multiple sclerosis within 5–10 years from disease onset.

We have classic tools to monitor and measure progression. These include the EDSS, a very established tool used during neurological examination. We also have patient-reported outcomes (PROs), as well as newer blood-derived biomarkers such as neurofilament light chain (NfL) and GFAP.

Of course, MRI remains an important tool, and in recent years we have also seen the development of digital tools, smartphone-based applications and wearables.

Integrating all these sources of information can, in principle, give us a good overview of a patient's disease status, including the patient's own perception of their condition.

The challenge lies in correctly integrating and interpreting all of these findings.

What works, and what doesn't

Now we come to the next section: what does not work.

One thing that does not work is relying only on the EDSS, as has often been done in clinical trials for new MS therapies.

Similarly, relying heavily or exclusively on radiographic findings, such as new lesions, is also insufficient.

Instead, we need to take a fully integrated view of a patient's risk of progression by combining clinical markers, biomarkers, imaging findings and patient-reported outcomes in a multimodal way.

This can increasingly be supported by modern AI-based tools because the complexity and volume of information can overwhelm clinicians in routine practice, not only due to time constraints, but also because of difficulties interpreting certain findings, such as a specific serum NfL level, for example.

The future of integrated monitoring

This is where the future is heading.

There are now European consortia and other research projects underway aiming to integrate findings from multiple sources to provide clinicians with risk assessment tools and clinical decision-support systems.

These tools may help support personalised prognostic assessments and better identify individual patients at risk of progression.

Hopefully, these tools will become available within the next two to three years.

Without such tools — and this is my personal belief — we will not be able to fully deliver precision medicine to patients who are at risk of experiencing progression.

Closing Statement

Dr Marcello Moccia:

Thank you, Dr Paul, for your excellent summary.

Tracking progression in MS requires a balanced understanding of both the capabilities and limitations of our tools.

In the next module, we will look ahead to how emerging technologies, including artificial intelligence, may help us refine this process further.