

**Aducanumab — a Drug of hope for the elderly**Muhammad Kashan Zaheer,<sup>1</sup> Wajiha Siddiqi,<sup>2</sup> Ghana Raza<sup>3</sup>

Madam, Alzheimer's disease (AD) is a progressive neurodegenerative disorder characterized by impaired cognitive functions in a person.<sup>1</sup> It is the most common cause of dementia and a major cause of morbidity and mortality in the elderly. Currently, 50 million people in the world live with dementia, AD accounting for more than half (50-75%) of all cases.<sup>2</sup> Despite such an extensive burden of the disease, existing management options such as cholinesterase inhibitors and NMDA antagonists have failed to improve disease progress and are mainly focused on treating the symptoms.

On the 7th of June 2021 the U.S. Food and Drug Administration (FDA) approved Biogen®'s Aducanumab (ADU), an anti- beta-amyloid (A $\beta$ ) monoclonal antibody for the treatment of AD.<sup>3</sup> Although controversial, the FDA'S approval of the drug marks a historic event in the fight against this debilitating disease. ADU represents the first of its kind treatment against AD. It is the only new Alzheimer's drug to be approved in almost two decades and it's also the first drug to target A $\beta$ , a hallmark of AD pathophysiology. In a study, 3382 patients with AD were enrolled on three clinical trials to check for its efficacy. Patients who received the drug showed a time-dependent reduction of beta-amyloid plaque, while on the contrary, those on placebo did not.<sup>4</sup> However, due to inconsistent results in the phase III trials,<sup>5</sup> FDA requires Biogen to conduct a post-approval trial to verify clinical benefit. Failing to do so, may result in the FDA withdrawing the approval. Despite limited evidence regarding its efficacy, annual ADU therapy is priced at US\$56000, raising healthcare equity, accessibility, and affordability concerns.

Presently 60% of the world's population living with dementia belong to low-middle income countries, by

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<sup>1,2</sup>Final Year MBBS Student, Liaquat National Hospital and Medical College, Karachi, <sup>3</sup>Second Year MBBS Student, Jinnah Sindh Medical University, Karachi, Pakistan.

**Correspondence:** Muhammad Kashan Zaheer. Email: kashan.1598@gmail.com

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2050 this number shall expectedly rise to 71%. Along with its South Asian and Western Pacific neighbours, Pakistan comprises the world's fastest-growing elderly population,<sup>6</sup> which ultimately means more people with AD. This means we require efficient therapy options to fight an ever-growing disease burden in the upcoming years. Therefore, it is pivotal to acknowledge that ADU the first therapy to halt AD progression, is a milestone achieved in its treatment. It should be considered as a step forward towards the path to finding a cure. Should Biogen succeed in proving the efficacy of the drug post-approval, it provides clinicians with the opportunity to change the lives of those suffering from AD and improve disease prognosis, not just in the developed world but also in Pakistan, where it is needed more than ever.

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