ABSTRAK

Rakhmad, Rudi. 2013. **Immunogenitas Antibodi Beta Amyloid Poliklonal Sebagai Studi Awal Pengembangan Diagnosis Dini Penyakit Alzheimer.** Tugas Akhir, Program Studi Pendidikan Dokter Fakultas Kedokteran Universitas Brawijaya. Pembimbing: (1) Prof. Dr. dr. M. Rasjad Indra, MS., (2) dr. Eko Arisetijono, SpS.

Alzheimer disease adalah penyakit progresif neurologis otak yang memicu kehilangan sel neuron secara *irreversible,* kemampuan intelektual, termasuk ingatan dan kemampuan berfikir, yang dapat mengganggu fungsi sosial dan pekerjaan. Pada saat ini WHO memperkirakan populasi penderita alzheimer diseluruh dunia sekitar 25 juta orang dengan usia lebih dari 50 tahun, dan diperkirakan pada tahun 2050 terdapat peningkatan jumlah pasien alzheimer sebanyak 4 kali. Salah satu teori yang paling berpengaruh, yaitu teori ACH (*Amyloid Cascade Hypothesis*) menyebutkan bahwa deposit dan *misfolding* protein beta amyloid menyebabkan terbentuknya plak dan degenerasi sel neuron. Penelitian ini bertujuan untuk mengidentifikasi immunogenitas antibodi beta amyloid poliklonal sehingga dapat dikembangkan sebagai langkah awal diagnosis dini penyakit alzheimer. Studi eksperimental menggunakan *Randomized Group Post Test Only Design* dilakukan terhadap hewan coba kelinci. Sampel diambil dari darah kelinci yang telah diinjeksikan antigen seminggu sekali selama 5 minggu. Variabel yang dilihat pada penelitian ini adalah terbentuknya antibodi beta amyloid poliklonal dengan pegecekan kadar menggunakan metode Dot Blot dan ELISA. Hasil penelitian ini menunjukkan bahwa telah terproduksi antibodi poliklonal beta amyloid secara spesifik yang telah dibuktikan dengan adanya ikatan antara antigen dengan antibodi pada dot blot. Kesimpulan dari penelitian ini adalah antibodi beta amyloid dapat diproduksi melalui teknik produksi antibodi poliklonal dengan induksi antigen beta amyloid pada kelinci. Berdasarkan hasil penelitian ini, disarankan agar dilakukan penelitian lanjutan dengan memproduksi antibodi beta amyloid secara monoklonal dengan harapan menambah spesifitas dalam mengenali hanya satu epitope antigen saja.

Kata Kunci : antibodi, beta amyloid, penyakit Alzheimer

ABSTRACT

Rakhmad, Rudi. 2013. **Beta Amyloid Polyclonal Antibody Immunogenicity As Early Development Study of Early Diagnosis of Alzheimer's Disease.** Final Assignment, Medical Program, Faculty of Medicine, Brawijaya University. Supervisors: (1) Prof. Dr. dr. M. Rasjad Indra, MS., (2) dr. Eko Arisetijono, SpS.

Alzheimer's disease is a progressive neurologic disease of the brain that triggers irreversible neuronal cell loss, intellectual abilities, including memory and thinking ability, which can interfere with social and occupational functioning. At this time the WHO estimates that Alzheimer's sufferers worldwide population of about 25 million people with age more than 50 years, and it is estimated by 2050 there were an increasing number of Alzheimer's patients 4 times. One of the most influential theories, namely the theory of ACH (Amyloid Cascade Hypothesis) states there are deposits and misfolding of beta amyloid protein thus lead to the formation of plaques and tangles in neurons cells. This study aims to identify the immunogenicity of beta amyloid polyclonal antibodies that can be developed as a first step early diagnosis of Alzheimer 's disease. Experimental studies using randomized group post test only design conducted on experimental animals rabbits. Blood samples were taken from rabbits that had been injected antigen once a week for 5 weeks. Variables were found in this study is the formation of beta amyloid polyclonal antibody with detection levels using dot blot and ELISA methods. The results of this study indicate that it has been reproduced specific polyclonal antibody beta amyloid which has been evidenced by the bond between the antigen with the antibody in a dot blot. The conclusion of this study is the beta amyloid antibodies can be produced through production techniques with a polyclonal antibody against beta amyloid antigen induced rabbit. Based on these results, it is suggested that further research to produce beta amyloid is a monoclonal antibody with specificity in the hope of adding to recognize only one antigen epitope alone.

Keywords: Alzheimer's disease, antibodies, beta amyloid