

INTISARI

Latar Belakang. Demensia tumbuh menjadi kekhawatiran di seluruh dunia. Upaya dalam penurunan angka kejadian demensia telah banyak dilakukan. Namun belum ada penanganan yang menyembuhkan demensia. Kurkumin merupakan polifenol alami sehingga mampu memodulasi berbagai jalur persinyalan sebagai antiinflamasi, antioksidan, imunomodulator, antikarsinogenik, antitumor, antidiabetik, antibakteri, dan aktivitas neuroprotektif.

Tujuan Penelitian. Untuk mengkaji pengaruh pemberian terapi kurkumin terhadap aktivitas SOD dan GPX hippocampus, serta memori spasial pada tikus Wistar model demensia yang diinduksi trimetiltin.

Metode Penelitian. Tikus Wistar jantan, usia 3 bulan berat 200-300 g, dikelompokkan menjadi 5 kelompok. Kelompok C/kontrol diinjeksi saline intraperitoneal (i.p) dan larutan CMC-Na (p.o); Kelompok T diinjeksi larutan TMT 8 mg/kgBB dosis tunggal; Kelompok TC100 injeksi TMT dan curkumin dosis 100 mg/kgBB; Kelompok TC200 injeksi TMT dan kurkumin dosis 200 mg/kgBB; Kelompok TC300 injeksi TMT dan curkumin dosis 300 mg/kgBB. Pemberian kurkumin selama 21 hari. Pengujian memori spasial dengan uji Morris *Water Maze*, dan uji biokimia berupa uji aktivitas SOD dan GPX hippocampus.

Hasil Penelitian. Kelompok TC200 memiliki waktu latensi dan jarak tempuh pada *acquisition trials* uji MWM yang lebih pendek signifikan dibandingkan dengan kelompok T. % lama waktu, % jarak tempuh, dan frekuensi TC200 dan TC300 di kuadran target lebih tinggi dibandingkan dengan kelompok T pada *probe trial* uji MWM. Aktivitas enzim GPX pada kelompok TC200 lebih tinggi signifikan dibanding kelompok T namun tidak pada aktivitas SOD.

Kesimpulan. Terapi kurkumin menyebabkan waktu latensi dan jarak tempuh rendah pada *acquisition trials*, menyebabkan % lama waktu, % jarak tempuh, dan frekuensi berada di kuadran target lebih tinggi pada *probe trial* uji MWM; serta menyebabkan aktivitas enzim *glutathione peroxidase* (GPX) lebih tinggi, namun tidak terhadap aktivitas SOD.

Kata kunci: kurkumin, demensia, TMT, memori spasial, SOD, GPX.

ABSTRACT

Background. Dementia is a major health problem and growing as a concern worldwide. Many research have been conducted to reduce the incidence of dementia. However, there is no treatment to cure dementia. Curcumin is a natural polyphenol which can modulate various signaling pathways such as antiinflammatory, antioxidant, immunomodulatory, anticarcinogenic, antitumor, antidiabetic, antibacterial, and neuroprotective activities.

Objective. To examine the effect of curcumin therapy on the SOD and GPX enzyme activity of hippocampus as well as spatial memory against trimethyltine-induced dementia in Wistar rats.

Methods. Male Wistar rat, 3 months old, 200-300 gram, was grouped into 5 groups. C (control) group was injected with saline (i.p) and CMC-Na solution (p.o). T group was injected with a single dose of 8 mg/kg TMT. TC100 group was injected with TMT followed by oral 100 mg/kg curcumin. TC200 group was injected with TMT followed by oral 200 mg/kg curcumin. TC300 group was injected with TMT followed by oral 300 mg/kg curcumin. Curcumin was administered daily for 21 days. Morris water maze test was carried out to examine the spatial memory. The hippocampal SOD and GPX activity were examined at the end of the experiment.

Results. TC200 group had significantly shorter escape latency and distance in the acquisition trials MWM test compared with the T group. There were significant differences between the percentages of time duration of the TC200 group in the target quadrant compared with T group on the probe trial MWM test. GPX activity in the TC200 group is higher compared with the T group but not in SOD activity.

Conclusions. Curcumin therapy may causes low time latency and distance on acquisition trials of MWM test, as well as high percentages of time, percentages of distance, and frequency in target quadrant in the probe trial of MWM test. Curcumin may causes higher activity of the *glutathione peroxidase* (GPX) enzyme, but not on SOD activity,

Keywords: Curcumin, dementia, TMT, spatial memory, SOD, GPX.