

Regenerasi sel leydig tikus putih (rattus norvegicus) dewasa setelah penghentian pajanan monosodium glutamat = Leydig cells regeneration in adult albino rats rattus norvegicus after cessation of monosodium glutamate exposure

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Abstrak

Latar Belakang : Monosodium glutamat (MSG) mengandung glutamat yang apabila terakumulasi akan mengakibatkan kerusakan berbagai sel dan organ, salah satunya adalah sel Leydig. Sel Leydig memiliki kemampuan regenerasi setelah mengalami kerusakan. Penelitian ini bertujuan mengetahui kemampuan regenerasi sel Leydig tikus dewasa yang rusak akibat pajanan MSG.

Metode : Penelitian ini menggunakan 27 ekor tikus putih jantan strain Sprague Dawley usia 10-12 minggu yang dibagi menjadi 9 kelompok. Kelompok kontrol (K) diberikan aquadest 1,5 ml, kelompok PI diberikan MSG 4g/kgBB, dan kelompok PII diberikan MSG 6g/kgBB. Perlakuan diberikan secara oral selama 30 hari. Dari masing-masing perlakuan akan dibagi menjadi kelompok yang dimatikan 1 hari, 14 hari, dan 28 hari pasca perlakuan terakhir dihentikan. Testis kanan dan hipofisis dibuat sajian histologi menggunakan pewarnaan HE dan PAS. Parameter yang diamati adalah jumlah sel Leydig, sel berinti lonjong intersisial tubulus seminiferus, dan sel basofil adenohipofisis.

Hasil : Peningkatan dosis MSG menyebabkan penurunan jumlah sel Leydig, serta peningkatan jumlah sel berinti lonjong intersisial tubulus seminiferus yang diduga merupakan sel progenitor Leydig. Pajanan MSG juga menyebabkan penurunan jumlah sel basofil adenohipofisis. Setelah pajanan MSG dihentikan selama 14 hari dan 28 hari, terjadi peningkatan jumlah sel Leydig, penurunan jumlah sel berinti lonjong, dan peningkatan jumlah sel basofil.

Kesimpulan : Sel leydig memiliki kemampuan regenerasi yang berlangsung antara 14 hingga 28 hari setelah penghentian pajanan MSG.

.....Background : Monosodium glutamate (MSG) contains glutamate which if accumulated will result in damage to various cells and organs, one of which in the Leydig cells. Leydig cells had the ability to regenerate after damage. This study aims to investigate the Leydig cells regeneration of adult male rats after cessation

of MSG exposure. Methods: This study was performed on twenty-seven Sprague Dawley male rats (10-12 weeks old). They were divided into 9 groups. Control group (K) was given aquadest 1,5ml/day and two treated groups (PI and PII) were given MSG 4g/kgBB and 6 g/kgBB. Treatment was given orally during 30 days. Each group

was then divided into three groups that were sacrificed 1 day, 14 days and 28 days after the last treatment. Histological preparations of the right testes and pituitary was studied using HE and PAS staining, respectively. The number of Leydig and oval nucleated cells of the seminiferous tubules interstitial as well as basophil cells of adenohypophysis were observed.

Result : Monosodium glutamate exposure caused a dose-dependent decrease in the number of Leydig cells

and an increase in the number of oval nucleated cells. It was suggested that the oval nucleated cells were Leydig progenitor cells.

Monosodium glutamate exposure also caused a decrease in the number of basophil cells of adenohypophysis. After cessation of MSG for 14 and 28 days, there was an increase in the number of Leydig cells, a decrease in the number of oval nucleated cells and an increase in the number of basophil cells.

Conclusion : Leydig cells had the ability to regenerate and the regeneration took place between 14 and 28 days after cessation of MSG exposure.