INTISARI

GAMBARAN HISTOLOGIS DUODENUM TIKUS PUTIH (*Rattus norvegicus albinus*) AKIBAT VARIASI DOSIS DAN CARA PEMBERIAN BISPHENOL A

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Bisphenol A sebagai salah satu bahan kimia industri yang digunakan dalam pembuatan botol plastik, wadah makanan dan kertas termal memiliki efek bahaya bagi tubuh. Dampak dari Bisphenol A membuat kerusakan organ, termasuk duodenum. Duodenum dapat mengalami kerusakan akibat Bisphenol A karena adanya kontak saat proses penyerapan atau secara sistemik melalui pembuluh darah akibat BPA dari lingkungan. Tujuan dari penelitian ini untuk mengetahui gambaran histologis duodenum akibat pemberian Bisphenol A dengan variasi dosis dan cara pemberiannya.

Digunakan dua puluh ekor tikus putih yang dibagi menjadi lima kelompok, masing-masing 4 ekor. Kelompok kontrol 1 diberi minyak jagung, kelompok kontrol 2 diberi etanol 0,1%, kelompok perlakuan 1 diinjeksikan BPA 70 µg/kg BB+etanol 0,1%, kelompok perlakuan 2 dan 3 secara berurutan diinduksi dengan BPA dalam minyak jagung secara per oral dengan dosis 50 mg/kg BB dan 400 mg/kg BB. Perlakuan diberikan selama 28 hari. Setelah perlakuan, hewan dieutanasi dengan injeksi ketamin dosis 90 mg/kg BB kemudian difiksasi dalam neutral buffer formalin 10% menggunakan teknik perfusi. Duodenum dikoleksi, kemudian dibuat preparat histologi dalam paraffin blok dan diwarnai hematoksilin-eosin. Preparat histologi duodenum diamati menggunakan mikroskop cahaya yang dilengkapi perangkat OptiLab dan hasilnya dianalisis secara deskriptif.

Hasil penelitian menunjukkan dosis rendah Bisphenol A 70µg/kg secara subcutan memberikan kerusakan yang hampir sama dengan dosis tinggi Bisphenol A secara oral. Perubahan struktur histologis akibat pemberian Bisphenol A ialah terbentuknya ruang subepitel, ruang paraseluler, erosi vili, dan kongesti. Kesimpulan dari penelitian ini adalah pemberian Bisphenol A secara subcutan pada dosis rendah menyebabkan perubahan histologis duodenum yang mirip dengan pemberian dalam dosis tinggi secara oral.

Kata kunci: Bisphenol A, duodenum, per oral, injeksi subcutan, variasi dosis

ABSTRACT

HISTOLOGICAL FEATURES OF DUODENUM RATS (*Rattus norvegicus albinus*) DUE TO DOSAGE VARIATION AND DELIVERY METHODS OF BISPHENOL A

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Bisphenol A as one of industrial chemical that widely used in manufactured of plastic bottles, food containers and thermal paper has adverse effect on body. The impact of Bisphenol A causes damage to organs, including duodenum. Duodenum can be damaged by Bisphenol A due to contact during the absorption process or systemically through the blood vessels due to BPA from the environment. This study aimed to observe histological features of rat duodenum as the results of variation of dosage and methods of delivery of Bipshenol A.

Twenty rats were randomly divided into five groups containing four rats each group. Group KK1 as a control were given corn oil orally, group KK2 as a control were given ethanol 0,1% subcutaneous injection, group KP1 were given Bisphenol A 70 µg/kg BW in ethanol 0,1% subcutaneous injection, group KP2 were given Bisphenol A 50 mg/kg BW in corn oil orally and group KP3 were given Bisphenol A 400 mg/kg BW in corn oil orally. The duration of exposure was 28 days. After treatment, the rats were euthanized by ketamine 90 mg/kg BW and fixation in neutral buffer formalin 10% using perfusion technique. Duodenum were collected and processed for histological tissue and stained using HE. Examined was using light microscope that equipped by OptiLab. The result were analyzed descriptively.

The result showed that low doses of Bisphenol A 70 µg/kg via subcutaneous injection caused almost the same damage as high doses of Bisphenol A orally. Several histological changes in duodenum such as subepitelial space, paracellular space, erosion, and congestion. The conclusion of this study is that subcutaneous injection of Bisphenol A at low doses causes the similiar changes in duodenum with those given orally at high doses.

Keywords: Bisphenol A, duodenum, variation dose, per oral, subcutan injection