Efek Lunasin pada Ekspresi Caspase-3 Kolon Mencit Diinduksi Dextran Sodium Sulfate dan Azoksimetana = Effect of Lunasin to Caspase-3 Expression in Dextran Sodium Sulfate and Azoxymethane Induced Mice Colon

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Abstrak

Latar belakang: Kanker kolon merupakan salah satu kanker yang paling sering didiagnosis di dunia, termasuk Indonesia. Pengobatan yang tersedia memiliki tingkat keberhasilan tidak memuaskan dengan berbagai komplikasi sekunder. Lunasin telah dikembangkan karena aktivitasnya yang mencolok dalam menghambat perkembangan kanker. Caspase-3 merupakan mediator utama apoptosis yang digunakan sebagai penanda kemanjuran terapi kanker. Penelitian ini bertujuan untuk membuktikan pengaruh lunasin terhadap ekspresi Caspase-3 pada kolon mencit yang diiinduksi DSS dan AOM. Metode: Mencit Swiss-Webster jantan berjumlah tiga puluh ekor dengan rerata berat badan 20 gram dibagi dalam enam kelompok yang terdiri dari kontrol normal, kontrol negatif, kontrol positif, lunasin dosis 250 mg/kgBB, 300 mg/kgBB, dan 350 mg/kgBB. Seluruh kelompok kecuali kontrol normal diinduksi DSS dan AOM. Kontrol positif menerima aspirin. Kolon mencit dibuat preparat menggunakan pewarnaan imunohistokimia dan HE sebagai counterstain. Preparat dibaca di mikroskop dan h-score menggunakan immunohistochemistry profiler. Hasil: Seluruh kelompok kontrol normal (mean=250,13), kontrol negatif (mean=133,22), kontrol positif (mean=214,83), lunasin dosis 250 mg/kgBB (mean=163,35), 300 mg/kgBB (mean=189,94), dan 350 mg/kgBB (mean=216,43) terdapat perbedaan signifikan kecuali antara kelompok kontrol positif dengan dosis 350 mg/kgBB. Selain itu, terdapat ekspresi Caspase-3 lebih tinggi yang signifikan seiring peningkatan dosis lunasin. Kesimpulan: Lunasin dosis 250 mg/kgBB, 300 mg/kgBB, dan 350 mg/kgBB terbukti berpengaruh meningkatkan ekspresi Caspase-3 kolon mencit yang diinduksi DSS dan AOM.
.....Background: Colon cancer is one of the most frequently diagnosed cancers in the world, including Indonesia. Currently available treatment has an unsatisfactory success rate with a variety of secondary complications. Lunasin has been developed for its striking activity in inhibiting the development of cancer. Caspase-3 is the main mediator of apoptosis which is used as a marker of cancer therapeutic efficacy. This study aimed to prove the effect of lunasin on Caspase-3 expression in the colon of mice induced by DSS and AOM. Methods: Thirty male Swiss-Webster mice with an average body weight of 20 grams were divided into six groups consisting of normal control, negative control, positive control, doses of lunasin 250 mg/kgBW, 300 mg/kgBW, and 350 mg/kgBW. All groups except normal controls were induced by DSS and AOM. Positive controls received aspirin. Mice colons were prepared using immunohistochemical staining and HE as a counterstain. The preparations were read under a microscope and h-score using an immunohistochemistry profiler.
Results: In all groups of normal control (mean=250.13), negative control (mean=133.22), positive control (mean=214.83), doses of lunasin 250 mg/kgBW (mean=163.35), 300 mg/kgBW (mean=189.94), and 350 mg/kgBW (mean=216.43) there were significant differences except between the positive control group with 350 mg/kgBW group. In addition, there was a significantly higher Caspase-3 expression as the dose of lunasin increased.

Conclusion: Lunasin 250 mg/kgBW, 300 mg/kgBW, and 350 mg/kgBW proved to have an effect on increasing the expression of Caspase-3 in the colon of mice induced by DSS and AOM.