Kadar bromotyrosine urin pada pasien asma terkontrol dan tidak terkontrol berdasrkan Asthman Control Test (ACT) di RSUP Persahabatan = Urine bromotyrosine levels in controlled and uncontrolled asthma based on the Asthma Control Test (ACT) in patient at Persahabatan Hospital

Ni Putu Surya Diana, author

Abstrak

Latar Belakang: Asma merupakan penyakit heterogen yang memiliki karakteristik gangguan inflamasi kronik yang ditandai oleh pelepasan mediator inflamasi oleh sel-sel inflamasi pada saluran napas. Pada pasien asma alergi dan nonalergi terjadi peningkatan eosinofil di darah tepi. Selain eosinofil darah, bromotyrosine juga menjadi penanda hayati stres oksidatif yang dibentuk dari residu protein tirosin oleh asam hipobromit yang dihasilkan oleh eosinofil Saat ini di Indonesia belum terdapat penelitian kadar bromotyrosine urin pada pasien asma.
Metode Penelitian: Penelitian ini merupakan penelitian pontong lintang pada pasien asma stabil yaitu pasien asma terkontrol dan tidak terkontrol berdasarkan asthma control test (ACT) yang datang ke poli asma PPOK di RSUP Persahabatan, Jakarta, Indonesia dari Januari hingga Mei 2021. Pengambilan sampel dilakukan secara consecutive sampling dan data subjek yang memenuhui kriteria inklusi diambil dari pemeriksaan eosinofil darah dan bromotyrosine urin dengan ELISA.
Hasil Penelitian: Dua puluh tiga pasien asma terkontrol dan 25 pasien asma tidak terkontrol yang memenuhi kriteria inklusi. Nilai median kadar bromotyrosine urin pasien asma terkontrol 0,914 µg/mL dan asma tidak terkontrol 0,949 µg/mL dengan nilai p = 0,062. Nilai median kadar eosinofil absolut pada pasien asma terkontrol 270 sel/mm3 dan asma tidak terkontrol 380 sel/mm3 (p> = 0,635), sedangkan nilai median kadar eosinofil pada pasien asma terkontrol 3,6% dan asma tidak terkontrol 4,5% (p = 0,657). Korelasi bromotyrosine urin dengan eosinofil absolut dan eosinofil pada pasien asma yaitu r=-0.051 (p = 0,732) dan r=-0.044 (p = 0,767). Namun, korelasi tersebut tidak bermakna secara statistik.
Kesimpulan: Tidak ada perbedaan yang bermakna antara kadar bromotyrosine urin pasien asma terkontrol dan tidak terkontrol secara statistik. Terdapat korelasi antara bromotyrsoine urin terhadap eosinofil absolut dan eosinofil, namun korelasi tersebut tidak menyimpulkan suatu hubungan sebab-akibat.
.....Background: Asthma is a heterogeneous disease characterized by chronic inflammatory disorders characterized by the release of inflammatory mediators by inflammatory cells in the airways. In allergic and nonallergic asthma patients, there is an increase of eosinophils in the peripheral blood. In addition to blood eosinophils, bromotyrosine is also a biomarker for oxidative stress formed from protein tyrosine residues by hypobromic acid derived from eosinophils. There has been no study of urinary bromotyrosine levels in asthmatic patients in Indonesia.
Methods: This study was a cross-sectional study on stable asthma patients, grouped into controlled and uncontrolled based on the asthma control test (ACT), who were treated at the COPD asthma polyclinic at Persahabatan Hospital, Jakarta, Indonesia between January and May 2021. Sampling was carried out by consecutive sampling and subjects who met the inclusion criteria were examined for their blood eosinophils and urine bromotyrosine by ELISA.

Results: This study included 23 patients with controlled asthma and 25 patients with uncontrolled asthma. There was a difference between median value of urinary bromotyrosine levels in controlled asthma patients (0.914 g/mL) and uncontrolled asthma (0.949 g/mL) although it was not significant ($p = 0.062$). The median value of absolute blood eosinophil levels in controlled asthmatic patients was 270 cells/mm3 and uncontrolled asthma was 380 cells/mm3 ($p = 0.635$), while the median value of blood eosinophil levels in controlled asthmatic patients was 3.6% and uncontrolled asthma was 4.5% ($p= 0.657$). The correlation of urinary bromotyrosine with absolute blood eosinophils and blood eosinophils count in asthmatic patients was $r=-0.051$ ($p = 0.732$) and $r=-0.044$ ($p = 0.767$), respectively. However, its correlation was not significant.

Conclusion: There was no significant difference between urinary bromotyrosine levels in controlled and uncontrolled asthma patients. There was a correlation between urinary bromotyrsoine on absolute blood eosinophils and blood eosinophil counts, although its correlation did not conclude a cause-and-effect relationship.