INTISARI

Efek Kastrasi Kucing terhadap *Glomerulus Filtration Rate* (GFR), Ukuran Ginjal, dan Karakteristik Urin

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Salah satu risiko yang diduga terjadi setelah kastrasi adalah meningkatnya risiko penyakit saluran urinasi bagian bawah atau pada kucing disebut *Feline Lower Urinary Tract Disease* (FLUTD). Beberapa penelitian telah berusaha mengungkap korelasi efek kastrasi dengan kejadian FLUTD pada kucing jantan dengan berbagai perspektif, akan tetapi hingga saat ini belum dapat ditemukan secara pasti mengapa kastrasi kucing jantan merupakan faktor risiko yang kuat untuk FLUTD. Belum ada penelitian yang mengamati efek kastrasi kucing dari perspektif ginjal dan karakteristik urin, sedangkan pada tikus atau mencit telah diketahui kastrasi dapat mempengaruhi *glomerulus filtration rate* (GFR), ukuran ginjal, volume urin sehari, ammonia urin, pH urin, dan berat jenis urin. Studi pada kucing tentang efek kastrasi sejauh ini hanya terbatas pada survey populasi yang menunjukkan adanya perbedaan yang signifikan antara dimensi ginjal jantan yang dikastrasi dibandingkan dengan jantan utuh, serta adanya penurunan kadar felinine urin dan cauxin urin setelah kastrasi. Penelitian ini bertujuan untuk melihat efek kastrasi kucing terhadap *glomerulus filtration rate* (GFR), ukuran ginjal, volume urin sehari, ammonia urin, pH urin, dan berat jenis urin. Penelitian ini mengamati empat ekor kucing domestik jantan usia satu hingga dua tahun yang dioperasi kastrasi dan empat ekor lainnya yang dilakukan operasi kastrasi palsu (*sham-castrated*). GFR diukur dengan *clearance creatinine*, ukuran ginjal diukur dengan ultrasonografi, urin yang ditampung dari kandang metabolisme diukur volume urin sehari, pH urin diukur dengan pH meter, ammonia urin diukur dengan metode indophenol, dan berat jenis urin diukur menggunakan refraktometer. Hasilnya menunjukkan kastrasi empat minggu pada kucing dapat menurunkan berat jenis urin, menurunkan GFR, menurunkan pH urin, meningkatkan kadar ammonia, dan tidak ada perubahan pada ukuran ginjal dan volume urin harian. Simpulan menunjukkan perubahan GFR, ukuran ginjal, dan karakteristik urin yang ditunjukkan setelah kastrasi 4 minggu, tidak menjadi promotor pembentukan batu di urin.

Kata kunci: ginjal, kucing, kastrasi, urin.

ABSTRACT

Effects of Cat Castration on Glomerular Filtration Rate (GFR), Kidney Size, and Characteristic of Urine

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One of the risks that is thought to occur after castration is the increased risk of lower urinary tract disease or in cats called Feline Lower Urinary Tract Disease (FLUTD). Several studies have attempted to reveal the correlation between the effects of castration and the occurrence of FLUTD in male cats with various perspectives, but until now it has not been established with certainty why male cat castration is a strong risk factor for FLUTD. There have been no studies examining the effects of cat castration from the perspective of kidney and urine characteristics, whereas in rats or mice, it is known that castration can affect glomerular filtration rate (GFR), kidney size, daily urine volume, urine ammonia, urine pH, and urine specific gravity. Studies in cats on the effects of castration have so far been limited to survey populations showing significant differences between the kidney dimensions of castrated males compared to intact males, as well as a decrease in urinary felinine and urinary cauxin levels after castration. This study aims to see the effect of cat castration on glomerular filtration rate (GFR), kidney size, daily urine volume, urine ammonia, urine pH, and urine specific gravity. This study observed four male cats aged one to two years who were castrated and the other four were sham-castrated. GFR was measured by creatinine clearance, kidney size was measured by ultrasonography, urine collected from metabolic cages was measured daily urine volume, urine pH was measured by a pH meter, urine ammonia was measured by the indophenol method, and urine specific gravity was measured by a refractometer. The results show that four weeks of castration in cats can reduce urine specific gravity, reduce GFR, decrease urine pH, increase ammonia levels, and there is no change in kidney size and daily urine volume. The conclusion showed that changes in GFR, kidney size, and urine characteristics were shown after 4 weeks of castration, not being a promoter of stone formation in the urine.

Keywords: kidney, cat, castration, urine.