

INTISARI

PENGARUH PEMBERIAN POLIHERBAL ANTIHIPERTENSI PADA GAMBARAN HISTOPATOLOGI AORTA TIKUS MODEL HIPERTENSI

Latar Belakang: Hipertensi adalah salah satu kondisi medis kronis umum di dunia. Jika tidak dikontrol, hipertensi dapat menimbulkan komplikasi pada aorta. Struktur aorta akan mengalami adaptasi sebagai respons terhadap stres mekanik, berupa perubahan ketebalan dinding dan luas lumen. Salah satu pengobatan farmakologis, yaitu polihebal yang mengandung *Allium sativum Bulbus*, *Terminalia bellirica (Gaertn.) Roxb*, *Curcuma aeruginosa Rhizoma*, dan *Amomum compactum Sol ex Maton* memiliki manfaat dalam menurunkan tekanan darah. Namun, polihebal antihipertensi tersebut belum terbukti secara ilmiah dalam mengurangi dan memperbaiki efek hipertensi terhadap aorta.

Tujuan: Untuk mengkaji efek polihebal antihipertensi yang mengandung *Allium sativum Bulbus*, *Terminalia bellirica (Gaertn.) Roxb*, *Curcuma aeruginosa Rhizoma*, dan *Amomum compactum Sol ex Maton* terhadap perbaikan gambaran histopatologi pembuluh darah aorta tikus model hipertensi.

Metode: Preparat histopatologi aorta tikus model hipertensi terbagi menjadi kelompok kontrol, kelompok hipertensi dan kelompok dosis (63, 126, dan 252 mg/kg). Preparat diamati menggunakan mikroskop cahaya dengan pembesaran 40x. Perimeter dan luas aorta diukur untuk menghitung ketebalan dinding, luas lumen, dan rasio luas dinding/lumen.

Hasil: Polihebal antihipertensi dosis 63 mg/kgBB dan 126 mg/kgBB dapat mengurangi luas lumen aorta tikus model hipertensi ($p < 0,05$). Sementara itu, ketebalan dinding dan rasio luas dinding/lumen aorta tidak membaik setelah diberikan polihebal antihipertensi ($p > 0,05$).

Kesimpulan: Penelitian ini memberikan bukti bahwa polihebal yang mengandung *Allium sativum L.*, *Terminalia bellirica (Gaertn.) Roxb*, *Curcuma aeruginosa Roxb. Rhizome*, dan *Amomum compactum Sol. ex Maton* dapat mengurangi luas lumen aorta, tetapi tidak dapat mengurangi ketebalan dinding dan menurunkan rasio luas dinding/lumen pada aorta.

Kata kunci: hipertensi, aorta, polihebal, antihipertensi, histopatologi

ABSTRACT

EFFECT OF POLYHERBAL ANTIHYPERTENSION ON HISTOPATHOLOGICAL FEATURES OF THE AORTA HYPERTENSION MODEL RAT

Background: Hypertension is one of the common chronic medical conditions in the world. If not controlled, hypertension can cause complications in the aorta. The aortic structure will experience adaptation in response to mechanical stress, in the form of changes in wall thickness and lumen area. One pharmacological treatment, namely polyherbals containing *Allium sativum* Bulbus, *Terminalia bellirica* (Gaertn.) Roxb, *Curcuma aeruginosa* Rhizoma, and *Amomum compactum* Sol ex Maton has benefits in lowering blood pressure. However, these antihypertensive polyherbs have not been scientifically proven to reduce the effects of hypertension on the aorta.

Objective: To examine the effect of antihypertensive polyherbals containing *Allium sativum* Bulbus, *Terminalia bellirica* (Gaertn.) Roxb, *Curcuma aeruginosa* Rhizoma, and *Amomum compactum* Sol ex Maton on improving the histopathological picture of the aorta in rats with hypertension models.

Method: Histopathology preparations of the aorta from hypertensive model rats were divided into control group, hypertension group and dose group (63, 126 and 252 mg/kg). The preparations were observed using a light microscope with 40x magnification. The aortic perimeter and area were measured to calculate wall thickness, lumen area, and wall/lumen area ratio.

Results: Antihypertensive polyherbal doses of 63 mg/kg and 126 mg/kg can reduce the lumen area of the aorta in hypertensive model rats ($p < 0,05$). Meanwhile, wall thickness and aortic wall/lumen area ratio did not improve after being given antihypertensive polyherbals ($p > 0,05$).

Conclusion: This research provides evidence that polyherbals containing *Allium sativum* L., *Terminalia bellirica* (Gaertn.) Roxb, *Curcuma aeruginosa* Roxb. Rhizome, and *Amomum compactum* Sol. ex Maton can reduce the aortic lumen area, but cannot reduce the wall thickness and wall/lumen area ratio in the aorta.

Key words: hypertension, aorta, polyherbal, antihypertensive, histopathology