

THE EFFECTIVENESS OF LD₇₅ INTRA PERITONEAL 0.25 MG/ KGBW LIPOPOLYSACCHARIDE IN INDUCING SEPSIS AND CAUSING DEATH IN MICE

IGL Sukamto¹⁾, Bambang Purwanto²⁾, Ambar Mudigdo³⁾, Suroto⁴⁾

¹⁾Doctoral Program in Medicine, Universitas Sebelas Maret

²⁾Department of Internal Medicine, Dr. Moewardi, Surakarta/ Faculty of Medicine, Universitas Sebelas Maret

³⁾Department of Anatomic Pathology, Dr. Moewardi, Surakarta/ Faculty of Medicine, Universitas Sebelas Maret

⁴⁾Department of Neurology, Dr. Moewardi, Surakarta/ Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Sepsis is a complex and serious problem. About 30 to 80% of sepsis is caused by Lipopolysaccharide (LPS). Previous studies set a large dose of intra peritoneal 5mg/ kgBW as a threshold for LPS to cause sepsis. No previous studies have informed about the minimal dose of LPS to cause sepsis. This study aimed to determine if ≥ 0.25 mg/ kgBW dose of LPS was effective to cause sepsis and death in mice.

Subjects and Method: This was a Randomized Controlled Trial conducted from January 18 to 24, 2016 at the Histology Laboratory of Universitas Sebelas Maret Surakarta. A sample of 20 mice was randomized into 5 groups, each consisting of 4 mice. Each mouse was injected intraperitoneal with one of 5 different doses of LPS: (1) Group 1 with 0.05 mg/ kgBW LPS; (2) Group 2 with 0.10 mg/ kgBW LPS; (3) Group 3 with 0.15 mg/ kgBW LPS; (4) Group 4 with 0.20 mg/ kgBW LPS; (5) Group 5 with 0.25 mg/ kgBW LPS. The LPS used in this study consisted of SIGMA L2880-10MG Lot # 025M4040V Lipopolysaccharides from Escherichia coli 055: B5 Purified by phenol extraction. The dependent variable was death. The independent variable was LPS. The percent of mortality after 3 days of LPS administration was compared between the group of mice receiving <0.25 mg/ kgBW LPS and the group of mice receiving ≥ 0.25 mg/ kgBW LPS using chi square test.

Results: The percent of mortality after 3 days of LPS administration in the group of mice receiving ≥ 0.25 mg/ kgBW LPS (75%) was higher than that in the group of mice receiving < 0.25 mg/ kgBW LPS (18.8%) (OR= 13.0; p= 0.028). It means that mice receiving ≥ 0.25 mg/ kgBW LPS had 13 times as many risk of death than mice receiving < 0.25 mg/ kgBW LPS, and it was statistically significant.

Conclusion: LPS with ≥ 0.25 mg/ kgBW dose is more effective to cause death of mice than LPS with < 0.25 mg/ kgBW dose.

Keywords: LPS, sepsis, mice, lethal dose

Correspondence:

IGL Sukamto. Doctoral Program in Medicine, Universitas Sebelas Maret, Jl. Ir. Sutami 36 A, Surakarta 57126, Central Java, Indonesia.

Email: igl.sukamto.span.dr@gmail.com. Mobile: 08122974441.