



## KEY WORDS

- ✓ Central Nervous System
- ✓ Cecal ligation and incision
- ✓ Glycyl-Glutamine
- ✓ Septic Shock
- ✓ Acute Infection

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## INVESTIGATING THE EFFECTS OF CENTRAL ADMINISTRATION OF GLYCYL-GLUTAMINE ON BLOOD PRESSURE AND INFLAMMATORY RESPONSE DURING

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## THESIS ABSTRACT

Glycyl-Glutamine (Gly-Gln) is a biologically active dipeptide formed in the central nervous system. Previous studies have shown that the opioidergic system, activated during circulatory shock, contributes to a decrease in mean arterial blood pressure (MAP), while opioid antagonists can prevent or attenuate this drop.

In this study, the effects of Gly-Gln on blood pressure and the inflammatory response were investigated in a rat model of septic shock. In rats with induced septic shock, central Gly-Gln administration attenuated the sepsis-induced drop in MAP without affecting heart rate. Additionally, it reduced the elevation of pro-inflammatory cytokines associated with septic shock.

## APPLICATION AREAS OF THE THESIS RESULTS

This study demonstrates, for the first time, the positive effects of central Glycyl-Glutamine administration on the dysregulated cardiovascular and immune responses during septic shock.

With this study, the hypothesis regarding the relationship between the central nervous system and the disrupted cardiovascular and immune systems in septic shock is opened for further investigation. This represents a significant advancement towards finding effective treatment strategies that can improve cardiovascular and immune system dysfunction during septic shock.

## ACADEMIC ACTIVITIES

- Investigation of the Interaction Between the Cholinergic System and Cannabinoidergic System in the Treatment of Hemorrhagic Shock
- Investigation of the Effects of Centrally and Peripherally Administered Glycyl-L-Glutamine on Plasma Adipokine Levels Under Normal and Hypotensive Conditions.
- Investigation of the Effects of Probiotic Supplementation on Current Immune System Mediators Involved in Inflammatory Processes in an Animal Model of Type 2 Diabetes.
- Investigation of the Effects of Probiotic Supplementation on Peripheral Tissue Damage in an Animal Model of Type 2 Diabetes
- $\alpha\beta 1$  integrin and its ligands as new potential biomarkers in FMF