بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

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قسم

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Neutrophil-to-lymphocyte count ratio in predicting prognosis of septic shock patients

Thesis

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In Intensive Care

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List of Abbreviations

ACCP .....American college of chest physicians

ADM .....Adrenomedullin

Ang.....Angiopoietin

ATPs.....Adenosine triphosphates

BP.....Blood pressure

CBC .....Complete blood count

CD14 .....Cluster of differentiation 14

CD64 .....Cluster of differentiation 64

ChT .....Chitotriosidase

CI .....Cardiac index

CO2 .....Carbon dioxide

CPB .....Cardiopulmonary bypass

CRP .....C-reactive protein

cvaCO2.....Gap central venous to arterial carbon dioxide gap

DIC .....Disseminated intravascular coagulopathy

HMGB1.....High mobility group box 1

I/R .....Ischemia reperfusion

ICU .....Intensive care unit

IL-1.....Interleukin 1

IL-10.....Interleukin 10

IL-12.....Interleukin 12

IL-1B .....Interleukin 1B

IL-2.....Interleukin 2

IL-27.....Interleukin 27

IL-4.....Interleukin 4

IL-6.....Interleukin 6

IV.....Intravenous

List of Abbreviations

kDa.....Kilodalton

LBP.....Lipopolysaccharide binding protein

LPS.....Lipopolysaccharide

MIF.....Migration inhibitory factor

MRSA .....Methicillin- resistant staph aureus

MSSA.....Methicillin-sensitive staph aureus

mvaCO2 .....Mixed venous to arterial carbon dioxide gap

NLR .....Neutrophil to lymphocyte count ratio

O2 .....Oxygen

PCO2 .....Partial pressure of carbon dioxide

PCT .....Procalcitonin

PMNs .....Polymorphoneuclear

PPV.....Pulse pressure variability

proADM .....Proadrenomedullin

SaO2.....Arterial oxygen saturation

SCCM .....Society of critical care medicine

Scvo2 .....Central venous oxygen saturation

SIRS .....Systemin inflammatory response syndrome

SOFA .....Sequential organ failure assessment

sTREM-1 .....Soluble triggering receptor expressed on myeloid cell 1

suPAR.....Soluble urokinase plasminogen activator receptor

SVV .....Stroke volume variability

TLR .....Toll like receptors

TNF .....Tumor necrosis factor

TNF-α .....Tumor necrosis factor alpha

uPAR .....Urokinase plasminogen activator receptor

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Abstract

Background: Septic shock is one of the most common causes of admission to the intensive care unit in the world and one of the most common causes of death among intensive care patients. Since the definition of sepsis and septic shock and many studies have been designed to understand everything about sepsis regarding mechanism, pathophysiology, complications, diagnosis, management and all other aspects .

Objective: To find the association between neutrophil to lymphocyte count ratio and the mortality from septic shock patients. The work aims also to determine if this ratio can be used as a prognostic marker of septic shock patients and to compare this ratio with other sepsis markers as C-reactive protein (CRP) and procalcitonin .

Patients and Methods: This study was conducted prospectively in critical care unit in Ain Shams Hospital, a university-affiliated, tertiary referral center in Cairo, Egypt. Study subjects included 125 patients between January 2018 to January 2019. The ethics committee of our institution approved the study protocol, and written informed consent was obtained from each patient's family.

Results: In our study, the neutrophils count was significantly increased in survived patients compared with early and late mortality patients in day 1 while lymphocytes count was lower in survived patient than early and late mortality patients and the NLCR in our study was higher in survived patients than early and late mortality patients. In day 4, our results revealed significant increase in neutrophils count in patients of late mortality compared with its count in survived

patients, while lymphocytes didn't show any significant difference compared with its count in survived patients with significant increase in NLCR in patients of late mortality compared with those of survived patients in day 4. Both CRP and procalcitonin are increased in patients of early and late mortality groups compared with its value in survived patients in day 1 and 4 .

Conclusion: This study demonstrates a real relationship between the NLCR and the risk of death in septic shock patients. Septic shock patients at risk of early death presented a low NLCR at admission, although late death was associated with an increased NLCR during the first 5 days. Early and late death should be distinguished because they may involve different underlying mechanisms, and the NLCR might be considered as a discriminant indicator of early or late death. In addition, our findings provide more insight into biology. The circulating neutrophil and lymphocyte trends observed in this study offer an interesting mechanistic viewpoint. We observed that circulating lymphocytes and the NLCR behave in opposite ways in early- and late death patients, supporting the hypothesis that divergent mechanisms could be involved in these two groups .

Keywords: C-reactive protein, intensive care unit