شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

# بسم الله الرحمن الرحيم


HANAA ALY

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# جامعة عين شمس

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# قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

# يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

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# Impact of qSOFA Score on the Outcome of Patients in ICU with Respiratory Tract Infection

*Thesis*
*For Partial Fulfilment Of Master Degree*
*In Chest Diseases*

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بسم الله الرحمن الرحيم

# قالوا

سبحانك لا علم لنا
إلا ما علمتنا إنك أنت
العليم الحكيم

صدق الله العظيم

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*Mohamed Younes Kedis*

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# *List of Abbreviations*

| *Abb.* | *Full term* |
|---|---|
| **ACR** | American college of radiology |
| **APACHE** | Acute physiology and chronic health evaluation |
| **ARDS** | Acute respiratory distress syndrome |
| **ARI** | Acute respiratory infection |
| **ATS** | American thoracic society |
| **BAL** | Bronchoalveolar lavage |
| **BUN** | Blood urea nitrogen |
| **CAP** | Community-acquired pneumonia |
| **CDC** | Centers for Disease Control |
| **COVID-19** | Coronavirus disease 2019 |
| **CPK** | Elevated creatine phosphokinase |
| **CRP** | C-reactive protein |
| **CT** | Although chest computed tomography |
| **ED** | Emergency department |
| **ESBL** | Extended spectrum beta-lactamase |
| **ESICM** | European Society of Intensive Care Medicine |
| **ESR** | Erythrocyte sedimentation rate |
| **HAP** | Hospital-acquired pneumonia |
| **HCAP** | Healthcare-associated pneumonia |
| **ICUs** | Intensive care units |
| **IDSA** | Infectious Diseases Society of America |
| **ILI** | Influenza-like illnesses |
| **IQR** | Interquartile range |
| **LDH** | Elevated lactate dehydrogenase |

| *Abb.* | *Full term* |
|---|---|
| **LMICs** | Low-and middle-income countries |
| **LOD** | Logistic organ dysfunction |
| **LRTI** | Lower respiratory tract infection |
| **MDR** | Multidrug resistant |
| **MEWS** | Modified early warning score |
| **MODS** | Multiple organs dysfunction score |
| **MPM** | Mortality prediction model |
| **MRSA** | Methicillin-resistant S. Aureus |
| **NEWS** | National early warning score |
| **ODIN** | Organ dysfunction and infection system |
| **OprD** | Outer membrane porin channel |
| **PSI** | Pneumonia severity index |
| **PT** | Elevated prothrombin time |
| **qSOFA** | Quick Sequential Organ Failure Assessment |
| **SAPS** | Simplifi ed acute physiology score |
| **SARI** | Severe acute respiratory infection |
| **SARS-CoV-2** | Severe acute respiratory syndrome coronavirus 2 |
| **SCCM** | Society of Critical Care Medicine |
| **SIRS** | Systemic inflammatory response syndrome criteria |
| **SIRS** | Systemic inflammatory response syndrome criteria |
| **SOFA** | Sequential organ failure assessment |
| **SOFA** | Severe organ failure assessment |
| **TRIOS** | Three-day recalibrating ICU outcomes |
| **VAP** | Ventilator-associated pneumonia |
| **WBCs** | White blood cells |
| **WHO** | World health organization |

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# Introduction

Acute respiratory infection (ARI) is a major cause of morbidity and mortality worldwide and tends to be a rapidly progressive illness due to pathogens having the potential for large scale epidemics. According to the World Health Organization (WHO), these annual epidemics result in 3–5 million severe illness cases and 290–650 thousand deaths all around the world. Influenza-like illnesses (ILI), a subset of ARIs, accounted for approximately 1.9 million deaths in children below 5 years of age worldwide in 2010 ***(Willams et al., 2012)***.

In addition to the ILI outpatient surveillance, the WHO recommended the member states to start a monitoring for severe ARIs (SARIs) in hospitalized patients after the 2009 influenza pandemic ***(WHO, 2014)***.

Severe acute respiratory infection (SARI) is one of the leading causes of sepsis among adults. Identifying patients with SARI and sepsis having higher risk of mortality is crucial to anticipate prognosis and follow treatment program. Many severity-scoring systems have been developed to assess the severity of these patients. Current guidelines suggest the use of various severity scores such as CURB-65 and pneumonia severity index (PSI) in order to classify patients with community-acquired pneumonia (CAP) ***(Mandell et al., 2017)***.

In 2016, the third international consensus definitions for sepsis and septic shock proposed a new definition and a scoring system based on sequential (sepsis-related) organ failure assessment (SOFA) score instead of systemic inflammatory response (SIRS) criteria, which has been used to define sepsis for a long time. In addition, the Sepsis-3 task force proposed the quick SOFA (qSOFA) as a simpler scoring system for the initial screening of patients at high risk for sepsis ***(Bone et al., 2018)***.

The qSOFA score is a bedside prompt that may identify patients with suspected infections who are greater risk for poor outcome in the intensive care unit (ICU) ***(Singer et al., 2016)***.

The introduction of the quick Sequential Organ Failure Assessment (qSOFA) score thus represents the effort to identify high risk patients as early as possible by using basic clinical criteria instead complex biomarkers ***(Seymour et al., 2016)***.

The score includes respiratory rate, Glasgow Coma Scale and systolic blood pressure, based on the analysis preceding the current sepsis definition algorithm. A score of at least two points is considered positive. Severeral publications have reported the correlation between a positive qSOFA score and poor outcome in septic patient ***(Freund et al., 2017)***.

score ranges from 0 to 3 points. The presence of 2 or more qSOFA points near the onset of infection was associated with a greater risk of death or prolonged intensive care unit stay. These are outcomes that are more common in infected patients who may be septic than those with uncomplicated infection. Based upon these findings, the Third International Consensus Definitions for Sepsis recommends qSOFA as a simple prompt to identify infected patients outside the ICU who are likely to be septic ***(Singer et al., 2017)***.

# Aim of the Study

To assess the impact of qSOFA score on the outcome of patients in ICU with respiratory tract infection.

# Lower Respiratory Tract Infection

Lower respiratory tract infection (LRTI) is a term often used as a synonym for pneumonia but can also be applied to other types of infection including lung abscess and acute bronchitis. Symptoms include shortness of breath, weakness, fever, coughing and fatigue. A routine chest X-ray is not always necessary for people who have symptoms of a lower respiratory tract infection ***(Cao, Amy Millicent, 2013)***.

In 2015 there were about 291 million cases. These resulted in 2.74 million deaths down from 3.4 million deaths in 2010. This was 4.8% of all deaths in 2013 ***(GBD,2013)***.

❖ **Bronchitis**

Bronchitis describes the swelling or inflammation of the bronchial tubes. Additionally, bronchitis is described as either acute or chronic depending on its presentation and is also further described by the causative agent. Acute bronchitis can be defined as acute bacterial or viral infection of the larger airways in healthy patients with no history of recurrent disease ***(Becker et al., 2015)***.

Viral bronchitis can sometimes be treated using antiviral medications depending on the virus causing the infection, and medications such as anti-inflammatory drugs and expectorants can help mitigate the symptoms ***(Becker et al., 2015)***.

Treatment of acute bronchitis with antibiotics is common but controversial as their use has only moderate benefit weighted against potential side effects (nausea and vomiting), increased resistance, and cost of treatment in a self-limiting condition ***(Smith et al., 2014)***.