



The Egyptian Society of Chest Diseases and Tuberculosis  
Egyptian Journal of Chest Diseases and Tuberculosis

[www.elsevier.com/locate/ejcdt](http://www.elsevier.com/locate/ejcdt)  
[www.sciencedirect.com](http://www.sciencedirect.com)



ORIGINAL ARTICLE

# Clinical characteristics and outcome of ICU admitted MERS corona virus infected patients



Ashraf Abdel Halim <sup>a,\*</sup>, Badr Alsayed <sup>b</sup>, Sameh Embarak <sup>a</sup>, Taha Yaseen <sup>c</sup>,  
Salwa Dabbous <sup>d</sup>

<sup>a</sup> Chest Department, Faculty of Medicine, Zagazig University, Zagazig, Egypt

<sup>b</sup> Tabuk University, Tabuk, Saudi Arabia

<sup>c</sup> ICU Department, Patna University, Patna, India

<sup>d</sup> Clinical Pathology Department, Faculty of Medicine, Cairo University, Cairo, Egypt

Received 7 November 2015; accepted 26 November 2015

Available online 14 December 2015

## KEYWORDS

MERS;  
Corona virus;  
Clinical characteristics;  
Outcome

**Abstract** Middle East Respiratory Syndrome (MERS) is a novel respiratory illness firstly reported in Saudi Arabia in 2012. It is caused by a new corona virus, called MERS corona virus (MERS-CoV). Most people who have MERS-CoV infection developed severe acute respiratory illness.

*Aim of the work:* This work is done to determine the clinical characteristics and the outcome of intensive care unit (ICU) admitted patients with confirmed MERS-CoV infection.

*Patients and methods:* This study included 32 laboratory confirmed MERS corona virus infected patients who were admitted into ICU. It included 20 (62.50%) males and 12 (37.50%) females. The mean age was  $43.99 \pm 13.03$  years. Diagnosis was done by real-time reverse transcription polymerase chain reaction (rRT-PCR) test for corona virus on throat swab, sputum, tracheal aspirate, or bronchoalveolar lavage specimens. Clinical characteristics, co-morbidities and outcome were reported for all subjects.

*Results:* The main symptoms among the included patients were: fever (96.87%), cough (93.75%), dyspnea (90.62%), sore throat (75%), runny nose (75%), sputum (50%), headache (43.75%), myalgia (40.62%), chest pain (37.50%), hemoptysis (37.50%), nausea and vomiting (34.37%), abdominal pain (21.87%) and diarrhea (15.62%). The presence of abdominal symptoms is significantly ( $P < 0.05$ ) associated with bad prognosis. Out of the included 32 patients, 18 patients (56.25%) survived and 14 patients (43.75%) expired. There was a statistically significant difference in the duration of symptoms before hospitalization, mechanical ventilation and ICU and total hospital stay between the expired group and survivors ( $P < 0.01$ ). Current smoking and smoking severity were statistically significantly ( $P < 0.01$ ) higher in the expired group compared to survivors. Also, there was a statistically ( $P < 0.05$ ) significant positive correlation between mortality and smoking severity ( $r = 0.640$ ). Most of the expired patients presented with bilateral pulmonary infiltrates or unilateral infiltrates, but most of the survivors presented with normal

\* Corresponding author. Mobile: +20 1100214951.

E-mail address: [ashrafaeh@gmail.com](mailto:ashrafaeh@gmail.com) (A.A. Halim).

Peer review under responsibility of The Egyptian Society of Chest Diseases and Tuberculosis.

<http://dx.doi.org/10.1016/j.ejcdt.2015.11.011>

0422-7638 © 2015 The Authors. Production and hosting by Elsevier B.V. on behalf of The Egyptian Society of Chest Diseases and Tuberculosis. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

radiology or increased bronchovascular markings, and this difference in the results was statistically highly significant ( $P < 0.01$ ). There were statistically highly significant ( $P < 0.01$ ) differences in the mean values of APACHE II score ( $21.11 \pm 3.70$  vs  $24.21 \pm 3.82$ ), SOFA score ( $5.83 \pm 2.64$  vs  $8.85 \pm 2.17$ ) and CPIS ( $7.55 \pm 1.14$  vs  $8.64 \pm 1.39$ ) between the expired group and survivors respectively. Also, there was a statistically significant decrease in PH, PaO<sub>2</sub>, O<sub>2</sub> saturation and HCO<sub>3</sub> ( $P < 0.05$ ) among the expired group in comparison with the survivors, but no statistical difference regarding PaCO<sub>2</sub> ( $P > 0.05$ ). There was a statistically significant positive correlation between mortality and old age ( $r = 0.633$ ), obesity ( $r = 0.712$ ), diabetes mellitus ( $r = 0.685$ ), renal failure ( $r = 0.705$ ), chronic heart diseases ( $r = 0.591$ ), COPD ( $r = 0.523$ ), malignancy ( $r = 0.692$ ), kidney transplantation ( $r = 0.644$ ) and liver cirrhosis ( $r = 0.525$ ) ( $P < 0.05$ ). There was a statistically ( $P < 0.05$ ) positive correlation between the number of associated co-morbidities and mortality ( $r = 0.735$ ).

**Conclusions:** Most MERS corona patients present with fever, cough, dyspnea, sore throat, runny nose and sputum. The presence of abdominal symptoms may indicate bad prognosis. Prolonged duration of symptoms before patients' hospitalization, prolonged duration of mechanical ventilation and hospital stay, bilateral radiological pulmonary infiltrates, and hypoxemic respiratory failure were found to be strong predictors of mortality in such patients. Also, old age, current smoking, smoking severity, presence of associated co-morbidities like obesity, diabetes mellitus, chronic heart diseases, COPD, malignancy, renal failure, renal transplantation and liver cirrhosis are associated with a poor outcome of ICU admitted MERS corona virus infected patients.

© 2015 The Authors. Production and hosting by Elsevier B.V. on behalf of The Egyptian Society of Chest Diseases and Tuberculosis. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Introduction

Middle East Respiratory Syndrome (MERS) is a new viral respiratory infection caused by a newly discovered corona virus, specifically, called Middle East Respiratory Syndrome Corona virus (MERS-CoV). In September 2012, the World Health Organization reported the first case of pneumonia caused by MERS-CoV in Saudi Arabia. All cases of MERS have been linked to countries in and near the Arabian Peninsula. This virus has spread from ill people to others through close contact, such as caring for or living with an infected person. Also, contact with the camels may be a potential source. However, there is no evidence of sustained spread in community settings. Most MERS patients developed a severe acute respiratory illness [1,2].

## Aim of the work

This work is done to determine the clinical characteristics and the outcome of ICU admitted patients with confirmed MERS-CoV infection.

## Patients and methods

This study included 32 laboratory confirmed MERS corona virus patients who were admitted into ICU. Consent was taken from the patients or their relatives.

All studied cases were subjected to:

- (1) Full medical history.
- (2) Thorough clinical examination.
- (3) Calculation of body mass index (BMI): a BMI of  $> 30$  is considered obese according to WHO [3].
- (4) Routine laboratory investigations (complete blood count, kidney and liver functions, and blood sugar testing).

- (5) Radiological assessment: chest X-ray (posteroanterior and lateral views) and computed tomography (CT).
- (6) Arterial blood gases, including; PH, PaO<sub>2</sub>, SaO<sub>2</sub>, PaCO<sub>2</sub> and HCO<sub>3</sub>.
- (7) Acute Physiology and Chronic Health Evaluation II (APACHE II) score, the Sequential Organ Failure Assessment score (SOFA) and the Clinical Pulmonary Infection Score (CPIS).
- (8) Throat swab (Eurotubo, Deltalab, 08191 Rubí, Barcelona, Spain), sputum, tracheal aspirate or bronchoalveolar lavage specimens were taken and stored at 28 °C, and transported within 72 h to the reference laboratories, where they were subjected to real-time reverse-transcriptase-polymerase-chain-reaction (rRT-PCR) assays to test for MERS-CoV (Altona Diagnostics GmbH, 22767 Hamburg, Germany). For all patients, the results of rRT-PCR tests were confirmed by measuring cycle-threshold values for viral load [4].

## Statistical analysis

The statistical analysis was performed with the Statistical Package for the Social Sciences, version 16 for Windows (SPSS Inc., Chicago, IL, USA). Chi-square test was used to measure association. Pearson's correlation test was used to measure correlation. Values of  $P < 0.05$  were considered statistically significant.

## Results

In this study, there were 20 (62.50%) males and 12 (37.50%) females. The mean age was  $43.99 \pm 13.03$  years.

The main symptoms among the included patients were: fever (96.87%), cough (93.75%), dyspnea (90.62%), sore

Download English Version:

<https://daneshyari.com/en/article/3399888>

Download Persian Version:

<https://daneshyari.com/article/3399888>

[Daneshyari.com](https://daneshyari.com)