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International Conference on

Emerging Diseases, Outbreaks & Case Studies

&

16th Annual Meeting on Influenza March 28-29, 2018 | Orlando, USA

Apparent poor prognosis for patients infected with MERS-CoV through human-human mode than animal-human

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Background: Many cases of Middle East Respiratory Syndrome Coronavirus (MERS-CoV) have been identified in the Kingdom of Saudi Arabia (KSA) since 2012. As of early December 2015, 549 of 1,277 patients (43%) with laboratory-confirmed MERS-CoV whom treated in Ministry of Health hospitals in KSA, confirmed to have died. Two main pathways by which MERS-CoV were reported to be transmitted: animal-to-human (AH) (primary infection); and human-to-human (HH) (secondary infection), most human cases reported to date have resulted from human-to-human transmission in health care settings. Although our knowledge of the clinical features of MERS-CoV infection has grown over the past three years, however, the pathogenesis of disease and treatment outcomes are still not well known. We aim in this study to investigate the differences between MERS-CoV animal-to-human and human-to-human transmitted cases, in relation to virulence and response to treatment.

Methods: All cases of laboratory-confirmed MERS-CoV occurring at King Fahad Hofuf Hospital in Al-Ahsa, Saudi Arabia, from April 1, 2012 to November 30, 2016 were reviewed retrospectively. Virulence (symptoms/severity of disease) was identified by using Acute Physiology and Chronic Health Evaluation II (APACHE II) and Sequential Organ Failure Assessment (SOFA) scoring systems, mode of MERS-CoV transmission, patients' demography, baseline characteristics, X-ray and laboratory findings, co-morbidities, prognosis and treatments' outcomes were identified.

Results: From April 1, 2012 to November 30, 2016, there were 107 laboratory-confirmed MERS-CoV cases, of which 23 (21.4%) cases were transmitted from AH and 84 (78.6%) were transmitted from HH mode. Ten (43%) AH and 43 HH MERS-CoV Patients' groups were admitted to ICU, time from onset of symptoms to ICU admission was (8 days (3-14) median AH group and 4 days (3-11) median for HH group. APACHE II score was higher in (AH, 11.2) group than (HH, 23) group P value 0.043. In AH group, n=2 patients were recovered, (n=2 transferred) to another care center, (n=9 died) and (n=4 discharged), whereas in HH group (n=5 recovered), (n=22 transferred), (n=45 died) and (n=12 discharged). Time from onset of MERS-CoV symptoms to death was (11 days, (8-17) median) for AH group and (5 days (6-9) median) HH group, P value 0.043. Piperacillin, tazobactam and levofloxacin was the most common combination prescribed to treat pneumonia in AH MERS CoV group (n=9, 39%), and (n=15, 18%) for HH group, whereas ribavirin was the most common used antiviral drug in AH (n=8m 35% for 11 days) and HH (n=53, 63% for 18 days) MERS-CoV groups.

Conclusion: Despite the small sample size of our study, higher APACHE II score was observed in human-human MERs CoV transmitted group in compare to animal to human group, accompanied with poor prognosis witnessed by short time from appearance of symptoms and transferring to ICU and death.

Speaker Biography

Mansour Tobaiqy is an Assistant Professor of Clinical Pharmacology in the Faculty of Medicine, University of Jeddah, KSA. He is also the General Supervisor of the Human Resources Development Centre in the same university and he has completed his PhD in Medicine and Therapeutics from the School of Medicine, University of Aberdeen, UK. He is also a Visiting Professor at RGU, UK. He has done several researches on the safety medicines in children and pharmacovigilance in general

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