Influenza as Research Trend among Iranians: 2016-2017

Masoud Mardani  MD,MPH,FIDSA ,FESCMID,
Professor Of  Infectious Diseases and Tropical Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Ilad Alavi Darazam  M.D.
Clinical Fellowship in Immunodeficiency and Transplant ation Infectious Diseases, Shahid Beheshti University of Medical Sciences, Tehran, Iran
- Search Database: PUBMED/Medline
- Duration: 10 years ago
- Human
- Keywords: ("Iran"[Mesh]) AND "Influenza, Human"[Mesh]
Results:
Publication date from 2016/01/01 to 2017/12/31.
PubMed
US National Library of Medicine
National Institutes of Health

PubMed Premium

PubMed Search Results

Search criteria:
- PubMed
- ("Iran"[Mesh]) AND "Influenza, Human"[Mesh]

Format: Abstract
Sort by: Publication Date

Search results:
Items: 3

Filters activated: Publication date from 2016/01/01 to 2017/12/31
Clear all to show 47 items.


Moasser E¹, Behzadian F², Moattari A³, Fotouhi F⁴, Rahimi A⁵,⁶, Zaraket H⁷,⁸, Hosseini SY³.

Author information

1. Department of Bioscience and Biotechnology, Malek-Ashtar University of Technology, Tehran, Iran.
2. Department of Bioscience and Biotechnology, Malek-Ashtar University of Technology, Tehran, Iran. 
   fbehzadian@yahoo.com.
3. Department of Bacteriology and Virology, Shiraz University of Medical Sciences, Shiraz, Iran.
4. Influenza Research Lab, Pasteur Institute of Iran, Tehran, Iran.
5. Bioinformatics and Computational Biology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran.
6. Department of Molecular Medicine, School of Advanced Medical Sciences and Technologies, Shiraz University of Medical Sciences, Shiraz, Iran.
7. Department of Experimental Pathology, Immunology and Microbiology, Faculty of Medicine, American University of Beirut, Beirut, Lebanon.
8. Center for Infectious Diseases Research, Faculty of Medicine, American University of Beirut, Beirut, Lebanon.
1.

- Here, we sought to genetically characterize influenza A/H1N1pdm09 and A/H3N2 viruses collected in Iran during the 2014-2015 influenza season.

- A total of 200 nasopharyngeal swabs were collected from patients with influenza-like illnesses.

- Swabs were screened for influenza A and B using real-time PCR.

- Furthermore, positive specimens with high virus load underwent virus isolation and genetic characterization of their hemagglutinin (HA) and M genes.
1.

- Of the 200 specimens, 80 were influenza A-positive, including 44 A/H1N1pdm09 and 36 A/H3N2, while 18 were influenza B-positive.

- Phylogenetic analysis of the HA genes of the A/H1N1pdm09 viruses revealed the circulation of clade 6C, characterized by amino acid substitutions D97N, V234I and K283E.

- Analysis of the A/H3N2 viruses showed a genetic drift from the vaccine strain A/Texas/50/2012 with 5 mutations (T128A, R142G, N145S, P198S and S219F) belonging to the antigenic sites A, B, and D of the HA protein.

- The A/H3N2 viruses belonged to phylogenetic clades 3C.2 and 3C.3. The M gene trees of the Iranian A/H1N1pdm09 and A/H3N2 mirrored the clustering patterns of their corresponding HA trees.
Our results reveal **co-circulation of several influenza A virus strains in Iran during the 2014-2015 influenza season.**
Seasonal influenza A/H3N2 virus infection and IL-1B, IL-10, IL-17, and IL-28 polymorphisms in Iranian population.

Seasonal influenza A/H3N2 virus infection and IL-1B, IL-10, IL-17, and IL-28 polymorphisms in Iranian population.

Rogo LD\textsuperscript{1,2}, Rezaei F\textsuperscript{3,4}, Marashi SM\textsuperscript{1}, Yekaninejad MS\textsuperscript{5}, Naseri M\textsuperscript{1,6}, Ghavami N\textsuperscript{1,6}, Mokhtari-Azad T\textsuperscript{7,8}.

\textbf{Author information}

1. Department of Virology, School of Public Health, Tehran University of Medical Sciences, International Campus, Tehran, Iran.
2. Department of Medical Laboratory Science, Faculty of Allied Health Sciences, College of Health Sciences, Bayero University Kano, Kano, Nigeria.
3. Department of Virology, School of Public Health, Tehran University of Medical Sciences, International Campus, Tehran, Iran. rezaei@tums.ac.ir.
4. National Influenza, Center Department of Medical Virology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran. rezaei@tums.ac.ir.
5. Department of Epidemiology and Biostatistics, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran.
6. National Influenza, Center Department of Medical Virology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran.
7. Department of Virology, School of Public Health, Tehran University of Medical Sciences, International Campus, Tehran, Iran. mokhtari@sina.tums.ac.ir.
8. National Influenza, Center Department of Medical Virology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran. mokhtari@sina.tums.ac.ir.
This is a Case-Control study in which influenza A/H3N2 virus positive confirmed with real-time PCR were the cases.

DNA samples from groups were genotyped for polymorphisms in rs16944 (IL-1β), rs1800872 (IL-10), rs2275913 (IL-17), and rs8099917 (IL-28).

Confidence interval (95%CI) and Odds ratio (OR) were calculated.
2. 

- IL-17 rs2275913 (GG and AG) were associated with risk of infection with that were statistically significant (P < 0.05, OR = 2.08-2.94).

- IL-1β (rs16944) (GG) was associated with reduced risk of infection (P < 0.01, OR = 0.46).

- Genotype GG and GT of IL-10 (rs1800872) were associated with increased risk of infection with influenza A/H3N2 virus (P < 0.05, OR = 2.04-2.58).
2. In addition, IL-28 (rs8099917) genotypes GG ($P < 0.05$, $OR = 0.49$) and TG ($P < 0.05$, $OR = 0.59$) were associated with reduced risk of ILI symptom while genotype TT ($P < 0.01$, $OR = 4.31$) was associated with increased risk of ILI symptom.
2. The results of this study demonstrated that polymorphisms of genes involved in the inflammatory and anti-inflammatory process affect the outcome of disease caused by influenza A/H3N2 virus.

Thorough insight on host immune response at the time of influenza A virus infection is required to ensure adequate patient care in the case of feature outbreaks.
3.

- Serological evidence of H9N2 avian influenza virus exposure among poultry workers from Fars province of Iran.

Serological evidence of H9N2 avian influenza virus exposure among poultry workers from Fars province of Iran.


Author information

1 Research and Innovation Department, Istituto Zooprofilattico Sperimentale delle Venezie, OIE/FAO and National Reference Laboratory for Newcastle Disease and Avian Influenza, OIE collaborating Center for Diseases at the Human-Animal Interface, Viale dell'Università 10, Legnano, PD, 35020, Italy. Ali.h.biotec@gmail.com.
2 Department of Comparative Biomedicine and Food Science, University of Padua, Legnaro, PD, Italy. Ali.h.biotec@gmail.com.
3 Food safety department, Istituto Zooprofilattico Sperimentale delle Venezie (IZSVe), Viale dell'Università 10, Legnano, PD, 35020, Italy. mmancin@izsvenezie.it.
4 Avian Diseases Research Center, School of Veterinary Medicine, Shiraz University, Shiraz, Iran. nili@shirazu.ac.ir.
5 Avian Diseases Research Center, School of Veterinary Medicine, Shiraz University, Shiraz, Iran. hpourghanbari@ardakan.ac.ir.
6 School of Veterinary Medicine, Ardakan University, Yazd, Iran. hpourghanbari@ardakan.ac.ir.
7 Health Policy Research Center of Shiraz University of Medical Science, Shiraz, Iran. lankaran@sums.ac.ir.
8 Research and Innovation Department, Istituto Zooprofilattico Sperimentale delle Venezie, OIE/FAO and National Reference Laboratory for Newcastle Disease and Avian Influenza, OIE collaborating Center for Diseases at the Human-Animal Interface, Viale dell'Università 10, Legnano, PD, 35020, Italy. sleardini@izsvenezie.it.
9 Research and Innovation Department, Istituto Zooprofilattico Sperimentale delle Venezie, OIE/FAO and National Reference Laboratory for Newcastle Disease and Avian Influenza, OIE collaborating Center for Diseases at the Human-Animal Interface, Viale dell'Università 10, Legnano, PD, 35020, Italy. gcattoli@izsvenezie.it.
10 Research and Innovation Department, Istituto Zooprofilattico Sperimentale delle Venezie, OIE/FAO and National Reference Laboratory for Newcastle Disease and Avian Influenza, OIE collaborating Center for Diseases at the Human-Animal Interface, Viale dell'Università 10, Legnano, PD, 35020, Italy. imonne@izsvenezie.it.
11 Department of Comparative Biomedicine and Food Science, University of Padua, Legnaro, PD, Italy. alessandra.piccirillo@unipd.it.
METHODS:

- 100 poultry workers and 100 healthy individuals with no professional exposure to poultry took part in this study. Serum samples were tested for antibodies against two distinct H9N2 avian influenza viruses, which showed different phylogenetic clustering and important molecular differences, such as at the amino acid (aa) position 226 (Q/L) (H3 numbering), using haemagglutination inhibition (HI) and microneutralization (MN) assays.
Results showed that 17% of the poultry workers were positive for the A/chicken/Iran/10VIR/854-5/2008 virus in MN test and 12% in HI test using the titer \( \geq 40 \) as positive cut-off value.

Only 2% of the poultry workers were positive for the A/chicken/Iran/12VIR/9630/1998 virus.

Seroprevalence of non exposed individuals for both H9N2 strains was below 3% by both tests.

Statistical analyses models showed that exposure to poultry significantly increases the risk of infection with H9N2 virus.
CONCLUSIONS:

- The results have demonstrated that exposure to avian H9N2 viruses had occurred among poultry workers in the Fars province of Iran.
- Continuous surveillance programmes should be implemented to monitor the presence of avian influenza infections in humans and to evaluate their potential threat to poultry workers and public health.
- Search Database: PUBMED/Medline
- Duration: 1 years ago
- Human
- Keywords: Iran AND Influenza
PubMed.gov

Search results

Items: 1 to 20 of 74

Filters activated: Publication date from 2016/01/01 to 2017/12/31. Clear all to show 328 items.
We reviewed these records: only 20 abstracts were associated with Humans, Clinical Studies, ...


Now we review all relevant clinical-epidemiologic abstracts:
H1N1 Influenza Patient Saved by Extracorporeal Membrane Oxygenation: First Report from Iran.

Herein, we describe a patient with H1N1 influenza and severe respiratory failure not improved by mechanical ventilation who was admitted to Masih Daneshvari Medical Center in March 2015. She was placed on ECMO, from which she was successfully weaned 9 days later. The patient was discharged from the hospital after 52 days. Follow-up till 11 months after discharge revealed completely active life with no problem. There should be a close collaboration among infectious disease specialists, cardiac anesthetists, cardiac surgeons, and intensivists for the correct timing of ECMO placement, subsequent weaning, and care of the patient. This team work was the key to our success story. This is the first patient to survive H1N1 with the use of ECMO in Iran.
A diagnostic one-step real-time reverse transcription polymerase chain reaction method for accurate detection of influenza virus type A.

RESULTS:

- The optimized assay results were similar to the WHO's. The optimized assay results were similar to WHO's, with non-significant differences for 10-103 copies of viral RNA/reaction (p > 0.05).

- It detected 10 copies of viral RNA/reaction with high reproducibility and no cross reactivity with other respiratory viruses. A specific cytopathic effect was observed in 6/64 (9.37%) of the ILI group using conventional culture and DFA staining methods; however, it was not seen in non-ILI. Also, the results of our assay and the WHO's were similar to those of viral isolation and DFA staining.

CONCLUSIONS:

- Given the high specificity, sensitivity and reproducibility of this novel assay, it can serve as a reliable diagnostic tool for the detection of influenza A viruses in clinical specimens and lab experiments.
Role of Iranian Traditional Medicine in the Prevention of Respiratory Infectious Diseases.

- **RESULTS:**
  - The perspective of traditional medicine for the prevention of disease in "havae vabai" is based on self-recuperation and air modification. Items that are mentioned are: refine the surrounding air, move to a proper space, live in a house with no source of water like fountains and limited flow of air, air-drying, use air freshener, smell fruit sticks, use in-house plants, and place a cloth soaked with vinegar in front of the nose. For self-recuperation, reducing body moisture with proper foods and drugs or with vomiting, diarrhea, phlebotomy, wet-cupping, reduction in food and drink intake, avoiding sexual intercourse, bathing, heavy exercise, inactivity, overeating, hunger, thirst, milk, sweets, fish, fatty foods, fruits especially juicy fruits are recommended. The food that tends to have a sour taste, eating meat cooked with sour taste like vinegar is suggested.

- **CONCLUSION:**
  - The use of the solutions offered in traditional medicine to control air is helpful as it can reduce epidemics, such as influenza; that yearly kills many patients with a heavy financial burden.

- In this study we estimated the burden of severe acute respiratory infection (SARI) and influenza-associated SARI (F-SARI) in selected provinces of Islamic Republic of Iran, the trends of SARI and confirmed cases of influenza (F-SARI) over 12 months (seasonality), and the age groups most at risk.
Using the electronic Iranian influenza surveillance system and data of cases in sentinel hospitals of 3 selected provinces, we estimated the monthly trend (seasonality) of incidence for SARI and F-SARI, overall incidence of SARI and F-SARI and their disaggregation by age with the aid using the Monte Carlo technique. The age groups most at-risk were children aged under 2 years and adults older than 50 years.
Metabolic syndrome as an independent risk factor of hypoxaemia in influenza A (H1N1) 2009 pandemic.

- We investigated the association between the overweight, metabolic syndrome and the severity of disease in the confirmed cases in Qazvin province, Iran.
- The study sample included all patients over 12 years old with confirmed influenza A (H1N1) in the province of Qazvin, Iran, in the 2009 pandemic, excluding pregnant women.
- To define overweight, sex and age-specific body mass index (BMI) cutoffs recommended by the International Obesity Task Force were used.
- Metabolic syndrome was defined by ATP III criteria.
- Multiple logistic regression analysis was performed to identify statistically independent predictors of hypoxaemia.
Out of 55 confirmed cases, 28 (50.9%) were overweight and 24 (45.3%) were identified as having metabolic syndrome by ATP III criteria.

Twenty four patients had hypoxaemia (arterial oxygen saturation below 90%) during the course of the disease. In multivariate logistic regression analysis, pulmonary co-morbidity (OR=9.54; 95% CI, 1.36 to 66.88; p=0.023) and the metabolic syndrome (OR=18.66; 95% CI, 1.60 to 217.47; p=0.019) were revealed to be independent risk factors for hypoxaemia in influenza A (H1N1) pdm09.
The results of the present study reveal the role of the metabolic syndrome on the severity of influenza A (H1N1) pdm09 infection.
Antiviral activity of the oseltamivir and Melissa officinalis L. essential oil against avian influenza A virus (H9N2).

- The findings of the study showed that lemon balm essential oil could inhibit influenza virus replication through different replication cycle steps especially throughout the direct interaction with the virus particles.
Impact of neuraminidase inhibitors on influenza A(H1N1)pdm09-related pneumonia: an individual participant data meta-analysis.

- METHODS:
  - A worldwide meta-analysis of individual participant data from 20,634 hospitalised patients with laboratory-confirmed A(H1N1)pdm09 (n = 20,021) or clinically diagnosed (n = 613) 'pandemic influenza'. The primary outcome was radiologically confirmed IRP. Odds ratios (OR) were estimated using generalised linear mixed modelling, adjusting for NAI treatment propensity, antibiotics and corticosteroids.
RESULTS:

Of 20 634 included participants, 5978 (29·0%) had IRP; conversely, 3349 (16·2%) had confirmed the absence of radiographic pneumonia (the comparator). Early NAI treatment (within 2 days of symptom onset) versus no NAI was not significantly associated with IRP [adj. OR 0·83 (95% CI 0·64-1·06; P = 0·136)]. Among the 5978 patients with IRP, early NAI treatment versus none did not impact on mortality [adj. OR = 0·72 (0·44-1·17; P = 0·180)] or likelihood of requiring ventilatory support [adj. OR = 1·17 (0·71-1·92; P = 0·537)], but early treatment versus later significantly reduced mortality [adj. OR = 0·70 (0·55-0·88; P = 0·003)] and likelihood of requiring ventilatory support [adj. OR = 0·68 (0·54-0·85; P = 0·001)].
CONCLUSIONS:

Early NAI treatment of patients hospitalised with A(H1N1)pdm09 virus infection versus no treatment did not reduce the likelihood of IRP. However, in patients who developed IRP, early NAI treatment versus later reduced the likelihood of mortality and needing ventilatory support.
The preventive and therapeutic potential of natural polyphenols on influenza.

- In this paper, a comprehensively review of natural polyphenolic products used worldwide for the management of influenza infection is presented.
- Cellular and molecular mechanisms of the natural polyphenols on influenza infection including suppressing virus replication cycle, viral hemagglutination, viral adhesion and penetration into the host cells, also intracellular transductional signaling pathways have been discussed in detail.
Based on cellular, animal, and human evidence obtained from several studies, the current paper demonstrates that natural polyphenolic compounds possess potential effects on both prevention and treatment of influenza, which can be used as adjuvant therapy with conventional chemical drugs for the management of influenza and its complications.