



Microbiology

team 436



Lecture : MERS-CoV & other viruses

■ important

■ Extra notes

■ Doctors notes

"لا حول ولا قوة إلا بالله العلي العظيم" وتقال هذه الجملة إذا دهم الإنسان أمر عظيم لا يستطيعه ، أو يصعب عليه القيام به .

Objectives:

- Characteristics of MERS-CoV, Rhinovirus, Coxsackieviruses Picornaviruses, Adenovirus, Epstein – Barr virus & other.
 - Mode of transmission
 - Clinical features
 - Lab diagnosis
 - Treatment & prevention
-

1- Introduction

Severe forms of Coronavirus

Structural features:
Enveloped virus with (+ve) polarity ss-RNA genome.

Family:
Coronaviridae.

Transmission:
Inhalation of infectious aerosol droplets.

The 2nd cause of common cold.

It causes zoonotic disease*

Ex:
SARS-CoV
MERS-CoV

*(the virus is capable of infecting **humans and animals** including birds, camels and others).

NOTE:

(-ve) polarity : we said in the previous lecture it is mean that the RNA of the virus will transcription to mRNA then translation to protein

But (+ve) polarity : the RNA of the virus will act as a mRNA so it's going to translation directly (NO transcription)

SARS-CoV

- **Severe Acute Respiratory Syndrome (SARS)**

- ✓ In winter of 2002, a new respiratory disease known as (SARS) emerged in China after a new mutation of coronavirus.
 - ✓ The disease spread worldwide due to travelling.
 - ✓ The animal reservoir may be cats or rats انتقل منهم للإنسان وصار خطير
 - ✓ SARS starts with high fever followed by cough with difficulty in breathing (atypical pneumonia).
 - ✓ Associated with high mortality due to respiratory failure.
-

- **Middle East Respiratory Syndrome coronavirus (MERS-CoV)**

- is viral respiratory illness first reported in Saudi Arabia in 2012. It is caused by a coronavirus.

- **Epidemiology:**

- ✓ -So far, all the cases have been linked to countries in and near the Arabian Peninsula.
- ✓ -Highly infectious, peak in winter.
- ✓ -Incubation period 2-14 days.

- **Transmission:**

- ✓ -This virus spread from ill people to others through close contact.
- ✓ -There is no evidence of sustained spreading in community settings.
- ✓ -Evidence also suggested that the virus can be acquired from direct close contact with animals.

- **Risk group:**

- ✓ -Individuals with weakened immune systems
- ✓ -People with pre-existing medical conditions (or comorbidities) such as diabetes, cancer, and chronic lung, heart, and kidney disease.

- **Clinical Features:**

- ✓ They had fever, cough, and shortness of breath.
- ✓ Some people also had gastrointestinal symptoms including diarrhea and nausea/vomiting.
- ✓ Some infected people had mild symptoms (such as cold-like symptoms) or no symptoms at all and they recovered completely.
- ✓ Most people with comorbidities developed severe acute respiratory illness.

- **Complications:**

- ✓ - Severe complications include pneumonia and kidney failure. About 30% of people with MERS-Co died.
-

MERS-CoV

general info. – Epidemiology – Transmission - Clinical Features – Complications - Lab diagnosis – Treatment - Prevention

- **Lab diagnosis:**

- ✓ Detection of the viral nucleic acid (NA) by **PCR**.
- ✓ Other methods: Isolation of the virus from NPA by cell culture.

- **Treatment:**

- ✓ No specific antiviral treatment. For severe cases, current treatment includes care to **support vital organ functions**.

- **Prevention:**

People are advised to protect themselves from respiratory illnesses by taking everyday preventive actions:

- ✓ -Wash your hands often with soap and water for 20 seconds, and use an alcohol-based hand sanitizer.
 - ✓ -Cover your nose and mouth with a tissue when you cough or sneeze, then throw the tissue in the trash.
 - ✓ -Avoid touching your eyes, nose and mouth with unwashed hands.
 - ✓ -Avoid personal contact, such as kissing, or sharing cups or eating utensils, with sick people.
 - ✓ -Clean and disinfect frequently touched surfaces such as toys and doorknobs.
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ENGLISH

- الإرشادات الصحية
- الأسئلة الشائعة
- المعدات الحافظة
- الإحصائيات والبيانات اليومية
- الأخبار الصحفية
- إرشادات الكادر الصحي

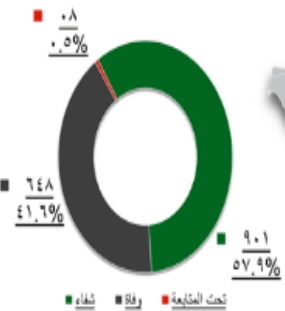
مركز القيادة والتحكم > الإحصائيات والبيانات اليومية > (الصحة): تسجيل حالي إصابة واحدة بفيروس (كورونا)

(للصحة): تسجيل حالي إصابة واحدة بفيروس (كورونا)

17/05/1438

متلازمة الشرق الاوسط - كورونا :
التحديث اليومي

مآل الحالات المؤكدة منذ عام 1433هـ



التاريخ: 16 أجهادي الأول 1438 هـ

المجموع	♂	♀	?
حالات باعراض مرضية	1	1	0
دون اعراض مرضية	0	0	0
الوفيات خلال 24 ساعة	0	0	0
التعافى خلال 24 ساعة	1	0	0

♂ = توجد مقلقة مبهمة أو غير مبهمة مع الوب
 ♀ = توجد مقلقة مع الوب
 ? = تحت التفسير



للمزيد من المعلومات حول المركز



إرشادات الكادر الصحي



معلومات القطاعات



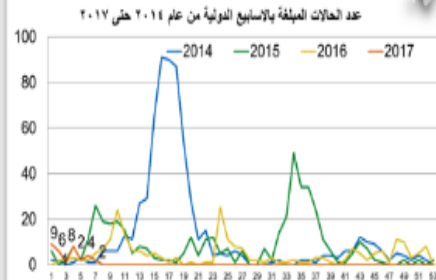
الإرشادات الصحية



آداب السعال والعطاس



فيديو - معلومات تهتمك عن كورونا



ENGLISH

- الإرشادات الصحية
- الأسئلة الشائعة
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- الإحصائيات والبيانات اليومية
- الأخبار الصحفية
- إرشادات الكادر الصحي

مركز القيادة والتحكم > الإحصائيات والبيانات اليومية

الإحصائيات والبيانات اليومية



للمزيد من المعلومات حول المركز



إرشادات الكادر الصحي



معلومات القطاعات



الإرشادات الصحية



عدد حالات الإصابة بفيروس كورونا

حسب الساعة 12 ظهراً بتاريخ 16 جمادى الأولى 1438 هـ

* منذ عام 1433 هـ الموافق 2012م
 توفي منهم 648 حالة
 (تعدادهم الله بواسع رحمته)

إجمالي
 1510 حالة
 + 35 حالات
 بدون الاعراض

901 حالة
 تمثلت للشفاة

8 حالة تحت
 العلاج

توضيح: يرجى ملاحظة أن العدد الإجمالي للحالات معرض لتغير بسبب إجراءات إعادة التصنيف، والتحديث في عدد الحالات بأثر رجعي، وجميع البيانات الخاصة بالحالات والنتائج الحديثة وبتأجيل المراجعة العزرة.

16 جمادى الأولى 1438

15 جمادى الأولى 1438

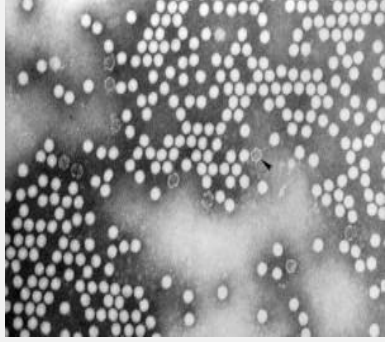
14 جمادى الأولى 1438

(الصحة): تسجيل حالي إصابة واحدة بفيروس (كورونا)

(الصحة): لا توجد حالات إصابة جديدة

(الصحة): تسجيل حالة إصابة واحدة بفيروس (كورونا)

2- Rhinovirus

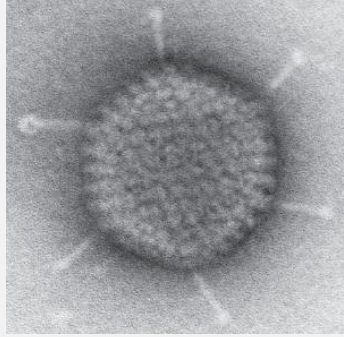


- **Family:** Picornaviridae.
- **Structural features:**
Non-enveloped virus with (+ve) polarity ssRNA genome, more than 100 serotypes available.
- **Transmission:**
Inhalation of infectious aerosol droplets.
- **Clinical symptoms:**
The **1st cause of common cold**. The main symptoms of common cold are sneezing, clear watery nasal discharge with mild sore throat, and cough.
- **Lab diagnosis:**
routine testing by detection of the viral NA from NPA **using PCR**.
- **Treatment and prevention:**
Usually self-limiting disease, no specific treatment, and no vaccine available.

3- Coxsackieviruses & other Picornaviruses

- **Family:** Picornaviridae.
 - **Structural features:**
 - Non-enveloped virus with (+ve) polarity ssRNA genome
 - Coxsackieviruses group A & B, Echovirus, Enteroviruses.
 - **Transmission:**
 - Inhalation of infectious aerosol droplets.
 - **Clinical symptoms:**
 - Coxsackieviruses commonly **cause herpangina and pharyngitis**
 - Echovirus & other Enteroviruses **cause respiratory symptoms**
 - **Lab diagnosis:**
 - routine testing by detection of the viral NA from NPA using **PCR**.
 - **Treatment and prevention:**
 - Usually self-limiting disease, no specific treatment, and no vaccine available.
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4- Adenovirus



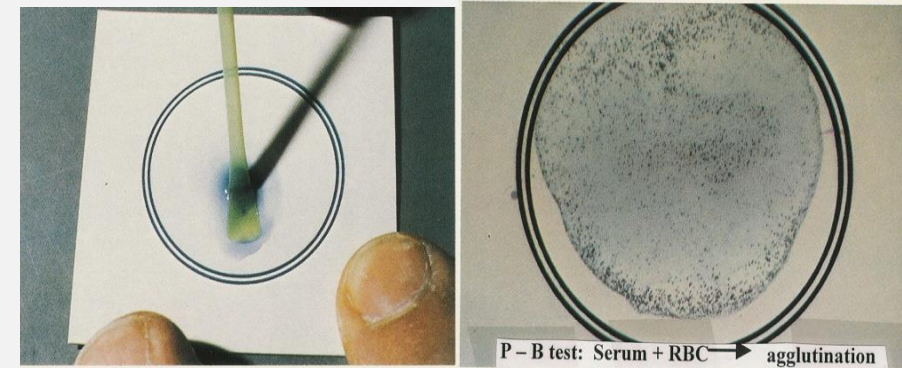
- **Family:** Adenoviridae.
 - **Structural features:** Non-enveloped virus with ds-DNA genome.
 - **Pathogenesis:** Adenovirus infects epithelial cell lining respiratory tract, conjunctiva, urinary tract, gastrointestinal tract and genital tract.
 - **Clinical syndrome:**
 1. Pharyngitis and tonsillitis.
 2. Pharyngoconjunctivitis
 3. Conjunctivitis.
 4. Pneumonia: in preschool children.
 5. Gastroenteritis.
 6. Acute hemorrhagic cystitis.
 7. UTI (Cervicitis and urethritis).
 - **Lab diagnosis:** **routine testing by** Direct detection of the Ag from NPA by direct **IFA** (immunofluorescent assay).
 - **Other detection methods:** tissue culture, PCR.
 - **Treatment and prevention:** No specific treatment or vaccine.
-

5- Epstein – Barr Virus (EBV)

- **Family:**
 - ✓ Herpesviridae
 - **Structure:**
 - ✓ -Enveloped , icosahedral dsDNA virus
 - ✓ -It is lymphotropic (**means likes the lymphoid tissues**)
 - ✓ -It has oncogenic properties:
 - Burkitt's lymphoma
 - Nasopharyngeal carcinoma
 - **B-cell lymphoma**
 - **Clinical Features:**
 - ✓ Immunocompetent host: **Asymptomatic** - Infectious mononucleosis [or glandular fever]
 - ✓ IP = 4-7 weeks
 - ✓ Fever, sore throat, tonsillitis, pharyngitis, malaise, hepatosplenomegaly & abnormal LFT, hepatitis.
 - **Epidemiology**
 - ✓ Distribution :worldwide (Mainly in teenagers & young adults)
 - **Transmission:**
 - ✓ Saliva [kissing disease] - Blood [rarely]
 - ✓ Age: Socio-economic status: SE
 - ✓ Low SE class--- >early childhood
 - ✓ High SE class> ---- adolescence
-

5- Epstein – Barr Virus (EBV)

- **Complications:**
 - ✓ (acute air way obstruction, splenic rupture, CNS infection)
 - ✓ Immunocompromised host: Lymphoproliferative disease (LD), Oral hairy leukoplakia (OHL)
- **Diagnosis:**
 - 1-Hematology:
 - WBC ↑ , lymphocytosis (Atypical lymphocytes)
 - 2-Serology tests:
 - Non-specific AB test: Heterophile Anti-bodies +ve , Paul-Bunnell or monospot test
 - EBV-specific AB test: Detection of IgM Anti-bodies to EBV capsid antigen by ELISA
- **Treatment and Prevention:**
 - There is no treatment for Infectious mononucleosis, No vaccine



GOOD LUCK!

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- Khalid Alhusainan
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- Nasir Aldosarie
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The Editing File

We are waiting for your feedback



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