Covid-19 CXH slides

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Caveat emptor

This is written by two respiratory doctors for an audience that includes operation doctors in the midst of a pandemic; it's a fluid situation, lots of research is being done and information contained within may become stale quickly. If you spot a bug or inaccuracy please ping me at drcjar@gmail.com or submit a pull request https://github.com/drcjar/covid-19-cxh-slides/ and I will fix.

Learning objectives

At the conclusion of this activity, participants will be able to...

- define sars-cov2 and covid-19
- describe basic epidemiology of covid-19
- summarize the key clinical features of covid-19

sars-cov2 and covid-19

- severe acute respiratory syndrome coronavirus 2 (sars-cov2) is the bug; Coronavirus disease 2019 (covid-19) is the pneumonia that the bug causes

- sars-cov2 is a large RNA virus (approximately 120 nm in diameter) from a family of viruses called coronaviruses. Corona means crown; it's called coronavirus because the virus is spherical and has spikes which look like a crown when viewed down an electron microscope.

basic epidemiology of covid-19

- WHO informed of outbreak of pneumonia of unknown aetiology in Wuhan City, Hubei Province, China on 31 December 2019; declared public health emergency of international concern on 30 January 2020; declared a pandemic on 11 March 2020

- R0, the basic reproduction number of an infection can be thought of as the expected number of cases directly generated by one case in a population where all individuals are susceptible to infection.
- it's 2-3 for covid-19 hence preventing spread is v important

- covid-19 is increasingly common in the UK population just now; for most people it's a mild self-limiting disease characterised by cough and fever secondary to respiratory infection with sars-cov2; however, some people need hospital admission and some of those need ITU.

- demand for hospital admission and ITU will shortly outstrip supply; case fatality rate is probably around 1% (country figures depend on case definition and how much testing is done). no significant sex difference, risk factors for hospital admission include having contact with a confirmed case, being older, being a healthcare worker, having comorbidities such as pre-existing respiratory and cardiovascular diseases and diabetes, smoking.

- droplet (can't travel more than 1m, can persist on surfaces, surgical mask helpful) +/- aerosol transmission (can travel more than 1m, surgical mask not helpful). social distancing, hand hygiene, and in a hosp setting appropriate use of PPE are important.

key clinical features of covid-19

- it's a chameleon (can present in lot of different ways, can hide in plain view)

- typical presentation is cough and fever
- other features include breathless, fatigue, myalgia, anorexia
- less often chest pain (2-5%), GI (D&V 1-10%, abdo pain approx 2%) and neurological symptoms e.g headache confusion (9%), dizziness (9-12%)

- differential diagnosis broad; plenty of diseases can mimic including flu, disease can also co-exist
- no reason to think usual population diseases are going to go away so Hickam's dictum likely to apply: "A man can have as many diseases as he damn well pleases."

- investigations to confirm diagnosis (and rule out differentials) and grade severity
- basics include SpO2 (+/- abg), fbc (lymphopenia common), U&Es, lfts, crp, d-dimer (high d-dimer assoc with increased mortality), CXR (bilateral infiltrates), nasopharyngeal and oropharyngeal swabs and sputum for micro (there's a molecular test, sensitivity and specificity about 90%), serological test soon

- management is largely supportive (several ongoing drug trials and vaccine development efforts) and prognosis good for most people infected (naturally much less good for subset of patients unwell enough for hospital admission)

- important to consider non-covid19 disease

- important to isolate patient and take appropriate respiratory precautions

- important to consider, and discuss with patients and document ceilings of care; clinical frailty score helpful (less than 5 is less frail and more likely to benefit from critical care, 5 or more is more frail and less likely to benefit from critical care.)

- important to be careful with fluids (no role unless pt is shocked, might make oxygenation worse), steroids (no role, likely to increase mortality), no role for routine antipyretic administration to treat fever

- important to escalate early (if pt is for escalation) and requiring increase respiratory support and/or multiple organ support

- important to not be at work if you, or someone in your household, shows symptoms (follow PHE and local guidelines).

Quiz

key questions and answers (to be determined)

References / further reading

- https://bestpractice.bmj.com/topics/en-gb/3000168
- https://www.uptodate.com/contents/coronavirus-disease-2019-covid-19
- https://emcrit.org/ibcc/COVID19/
- https://www.futurelearn.com/courses/covid19-novel-coronavirus/1
- https://coronavirustechhandbook.com/doctors