Does the suspicion of Ebola virus disease have consequences on the diagnosis delay for other infectious diseases?

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BACKGROUND

- ✓ **The 2014-2015 Ebola virus disease outbreak in West Africa is the largest in history**, and has affected more than 28,500 patients, and killed more than 11,000.
- ✓ Outside of Africa, **patients returning from an endemic area were classified as Ebola suspect cases if they presented with fever within 21 days after leaving an area at risk.**
- ✓ In most countries, a national surveillance system was implemented, including specific rules for the management of suspect cases, to ensure that no secondary transmission occurs.
- ✓ However, **most of these suspect cases turned out to be more common infectious diseases, including malaria**.

OBJECTIVES

- ✓ **To characterize patients suspected of Ebola virus disease outside of an endemic area,** focusing on
  - o the **final diagnosis**
  - o **the delay associated with Ebola virus disease suspicion in the diagnosis process for these patients**.

METHODS

- ✓ Retrospective **observational multicentric study**
- ✓ **Cases suspected of Ebola virus disease in France from April, 2014 to August, 2015.**
- ✓ **Inclusion** criteria
  - o **Fever**;
  - o **Stay in an Ebola endemic area within 21 days** before fever onset.
- ✓ Data were **collected on a standardized questionnaire, by physicians in charge.**
- ✓ Study **approved by the national ethics and data protection committees.**

RESULTS

Patients characteristics

- ✓ **34 patients** fulfilled inclusion criteria
  - o 19 males, 15 females
  - o median age, 33 years (IQR, 26-43)

- ✓ **They returned from**
  - o **Guinea (n=21)**
  - o Nigeria (n=4)
  - o Sierra Leone (n=3)
  - o Mali (n=3)
  - o Liberia (n=2)
  - o Congo (n=1).

Symptoms

- ✓ **For 7 patients, fever appeared in the endemic area; for the remaining 27, fever appeared after arrival in France**, with a median delay of 1 day (IQR, 0-8)

- ✓ **Other symptoms** included
  - o **asthenia (n=27)**
  - o **headache (n=20)**
  - o **myalgia (n=18)**
  - o abdominal pain (n=10)
  - o diarrhea (n=9).

Management

- ✓ Patients were admitted with a median delay of 1 day (0-5) after fever onset
- ✓ **28/34 (82%) were isolated with Ebola specific precautions**,
- ✓ For a **median duration of 8 hours (IQR, 2-30).**

Outcome

- ✓ **A final diagnosis was obtained in 28 patients (Table)**
  - o **malaria (n=10; 36% of diagnosis)**
  - o pneumonia (n=3)
  - o gastroenteritis (n=3)
  - o influenza-like illness (n=2)
  - o pharyngitis (n=2)
  - o cellulitis, pyelonephritis, tuberculosis, HIV, salmonellosis, shigellosis, influenza B, seizures (one patient each).
- ✓ No case of Ebola virus disease was diagnosed in France during the study period.*
- ✓ **All patients survived**

* Two previously confirmed cases transferred from Guinea (n=1), and Sierra Leone (n=1), were not included in this study

Diagnosis delay

- ✓ For **12 patients (35%), Ebola suspicion was associated with a diagnosis delay**
  - o for a **median duration of 3 hours (2-36)**
  - o with **no clinical consequences.**

Final diagnosis	n =
malaria	10
pneumonia	3
gastroenteritis	3
influenza-like illness	2
pharyngitis	2
cellulitis	1
pyelonephritis	1
tuberculosis	1
HIV	1
salmonellosis	1
shigellosis	1
influenza B	1
seizures	1

CONCLUSION

- ✓ **Most patients suspected of Ebola virus disease in France** during the 2014-2015 outbreak **were finally diagnosed with other infectious diseases, mostly malaria.**
- ✓ **Ebola suspicion was associated with a diagnosis delay in 35% of patients**
- ✓ **Diagnosis delay was limited in most instances (median, 3 hours; IQR 2-36), with no clinical consequence**

- ✓ **Limitations**
  - o Limited sample size (n=34), and retrospective design
  - o Recent reports suggest that **Ebola suspicion may delay adequate management of tropical diseases, including malaria** [1,2]

References
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2. **Tan KR, Cullen KA, Koumans EH, Arguin PM.** 2016. Inadequate Diagnosis and Treatment of Malaria Among Travelers Returning from Africa During the Ebola Epidemic - United States, 2014-2015. MMWR Morb Mortal Wkly Rep **65**:27-29.

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