IUSTI–E Scientific Advisory Council

Topic Report 2016  Gonorrhoea

Rapporteurs:  Prof. Magnus Unemo, Dr. Helen Fifer, Dr. Michelle Cole

Advances in the field 2015-6

The worrying antimicrobial resistance situation in Neisseria gonorrhoeae continues to be the main focus in Europe\(^1\), as well as all over the world. Dual antimicrobial therapy (ceftriaxone plus azithromycin) appears to be very effective, however, the evidence base for this treatment remains weak and its possibilities to prevent resistance emergence have been discussed\(^2\). Furthermore, an ongoing outbreak of high-level azithromycin resistant \(N.\) gonorrhoeae in England causes concern regarding future use of the dual therapy\(^3\). Moreover, additional ceftriaxone- and multidrug-resistant \(N.\) gonorrhoeae strains were identified\(^4\). Several molecular assays for prediction of antimicrobial resistance have been published in 2015\(^5\)–\(^7\), however, no commercial assay is currently available.

The search for new treatments for gonorrhoea continues, and current and possible future antimicrobial treatment of gonorrhoea was thoroughly reviewed\(^8\). The two new orally administered antimicrobials solithromycin and zoliflodacin (also known as AZD0914 or ETX0914) are the ones closest to clinical use. The Phase 2 trial for solithromycin was published in 2015\(^9\). Zoliflodacin was reviewed comprehensively\(^10\) and a European surveillance study proved the high susceptibility of this drug in contemporary clinical \(N.\) gonorrhoeae isolates from 21 European countries\(^11\). However, the only sustainable solution to manage gonorrhoea might be with an appropriate vaccine, and the potential impact of vaccination on the prevalence of gonorrhoea was modelled\(^12\).

Whole genome sequencing of \(N.\) gonorrhoeae has also become more commonly used\(^13\)–\(^14\). In the near future, whole genome sequencing will most likely revolutionize the surveillance of \(N.\) gonorrhoeae (gonorrhoea), diagnostics, antimicrobial resistance testing, and more.

5 Most Important Recent Publications


**Potential Speakers**

Gianfranco Spiteri, ECDC, Sweden on European epidemiology

Michelle Cole, PHE, UK on Antimicrobial resistance surveillance in Europe

Helen Fifer, PHE, UK on Treatment

Yonatan Grad, Harvard, USA or Simon Harris, Sanger, UK on Genomics of *Neisseria gonorrhoeae*

Christian Althaus, University of Bern, Switzerland on Mathematical modelling on infection and resistance spread

Magnus Unemo, WHO CC, Sweden

**Questions to be answered by future Research**

Evidence base for efficacy, including prevention of resistance emergence, of dual antimicrobial therapy (ceftriaxone plus azithromycin)?

Efficacy of antimicrobials at different anatomical sites, focus on pharynx?

New treatment for gonorrhoea?

How widespread is ceftriaxone and azithromycin resistance, in Europe and globally?

Molecular methods for resistance prediction: i) which methods, and ii) when and how to use in surveillance and clinical routine?

Vaccine only sustainable solution for future management of gonorrhoea?

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