

O267

2-hour Oral Session

Dealing with *Clostridium difficile*

Transmissibility of *C. difficile* without contact isolation: results from a prospective observational study

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Objectives

Traditionally, *C. difficile* infection (CDI) has been considered the result of hospital-wide transmission of this pathogen, however, recent studies challenge this concept by providing evidence that a substantial number of patients acquires *C. difficile* from sources other than symptomatic patients. In contrast to the recommendations issued by the Centers for Disease Control and Prevention (CDC), and the European Guidelines, issued by the European Society for Clinical Microbiology and Infectious Diseases (ESCMID), contact precautions for patients with CDI have not been implemented at the University Hospital of Basel except for patients infected with presumably hypervirulent strains such as ribotype 027 or 078. We aimed to estimate the transmissibility of *C. difficile* with standard precautions only.

Methods

This prospective observational study was performed at the University Hospital Basel, Switzerland – a tertiary academic care centre with 855 beds from 01/2003 to 12/2013.

For each index case with CDI, the contacts (i.e. patients sharing the same room during hospitalization) were screened for *C. difficile* by rectal swabs for detection of toxin producing *C. difficile*. *C. difficile* isolates from patients and contacts were characterised by PCR ribotyping. Transmission was defined as isolation of the same strain from index case and contact, confirmed by molecular typing. Next generation sequencing was performed to assess relatedness of strains if the index and contact patient revealed identical ribotypes. Differences in single nucleotide polymorphisms (SNPs) were interpreted as clonal between 0 and 2 and genetically related between 2 and 10.

Results

We identified 1,032 cases with presence of toxigenic *C. difficile* in their stool. Among these, 845 fulfilled the definition of CDI as issued by ESCMID.

534 contacts were exposed to the 845 index cases during their hospital stay. Active screening for toxigenic *C. difficile* by rectal swabs was performed for 88.4% of all contact patients (472/534). 62 contact patients were discharged before a rectal swab could be performed.

C. difficile was detected in 6.6% (31/472) of all contacts. Ribotyping to confirm transmission in these 31 contacts revealed identical strains in 6, accounting for transmission in 1.3% (6/472) of all contact patients. Next generation sequencing could be performed for 4 of the 6 pairs with identical strains, and revealed clonality in 2 pairs and genetical relatedness in the remaining 2.

Conclusion

We were able to identify a low rate of transmission of toxigenic *C. difficile* during an 11-year study period in a tertiary academic care centre only implementing standard precautions without contact isolation for CDI, except for the PCR ribotype 027 or 078. Our findings challenge the current recommendations of contact precautions for patients with CDI in non-epidemic settings - potentially saving resources and improving patient care.