Clostridium difficile

Clostridium difficile (etymology and pronunciation), also known as C. difficile, C. diff (/si:/ /dɪf/), or sometimes CDF/cdf, is a species of Gram-positive spore-forming bacteria.

Clostridia (members of the genus Clostridium) are anaerobic, motile bacteria, ubiquitous in nature, and especially prevalent in soil. Under the microscope, they appear as long, irregular (often drumstick- or spindle-shaped) cells with a bulge at their terminal ends. Under Gram staining, C. difficile cells are Gram-positive and show optimum growth on blood agar at human body temperatures in the absence of oxygen. When stressed, the bacteria produce spores that are able to tolerate extreme conditions that the active bacteria cannot tolerate.

C. difficile may become established in the human colon; it is present in 2–5% of the adult population.

Sometimes antibiotic therapy for various infections has the adverse effect of disrupting the normal balance of the gut flora, in which case C. difficile may opportunistically dominate, causing Clostridium difficile colitis.

Clostridium difficile infection (CDI) is an important cause of hospital-acquired morbidity and mortality. OBJECTIVE:

Data were extracted from the Nationwide Inpatient Sample (2002-2011). Patients with subarachnoid hemorrhage who underwent microsurgical or endovascular aneurysm repair were included. Multivariate logistic regression was used to determine the independent predictors of developing CDI. Additional models were constructed to assess the impact of CDI on mortality, length of stay, and discharge disposition.

Of the 18 007 patients who were included, 1.9% (n = 346) developed CDI. Patients who developed CDI were significantly older and had more comorbidities (P ≤ .001). Independent predictors of developing CDI were Medicaid payer status; ventriculostomy; mechanical ventilation; a greater number of noninfectious complications; and the development of a urinary tract infection; pneumonia; meningitis/ventriculitis; and sepsis (all P ≤ .02). Only 1.5% of patients with CDI required gastrointestinal surgery. Although CDI was not associated with differential mortality, it was associated with increased adjusted odds of a hospital stay of at least 24 days (odds ratio, 3.16; 95% confidence interval, 2.32-4.29; P < .001) and of a nonroutine hospital discharge (odds ratio, 1.64; 95% confidence interval, 1.13-2.39; P = .01).

In this nationwide analysis, both infectious and noninfectious complications, as well as ventriculostomy, mechanical ventilation, and insurance status were independent predictors of CDI. Although CDI was not associated with mortality, it was associated with a longer hospital stay and nonroutine hospital discharge [1)].

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Dasenbrock HH, Bartolozzi AR, Gormley WB, Frerichs KU, Aziz-Sultan MA, Du R. Clostridium difficile Infection After Subarachnoid Hemorrhage: A Nationwide Analysis. Neurosurgery. 2016 Mar;78(3):412-20. doi: 10.1227/NEU.0000000000001065. PubMed PMID: 26485334.