

A Survey Study for investigation of Clostridium difficile in feaces of newborn and children in AL-Dewaniya city

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Summary

- Afield study amid to survey for Clostridium difficile in feaces of infants and children under 10 years in AL-Dewaniya city who are on antibiotic treatment .

- The specimens Included (50) stool sample of infants and children aged from three months to ten years who suffered from diarrhea under antibiotic medication.

The result of the study showed none of those samples were positive result for isolation of Clostridium difficile.

Introduction

At birth the intestine is sterile, but organism are soon introduced with food. In breast-fed children, the intestine contains large number of lactic acid streptococci and lactobacilli. Aerobic and anaerobic, gram – positive , non –motile organism s (e.g. ;bifidobacterium species) produce acid from carbohydrates and tolerate PH 5.0. IN bottle-fed children ,amore mixed flora such as Escherichia Coli exists in the bowel and lactobacilli are less prominent .(Brooks.*etal*, 2001).

In the normal adult , esophagus contains microorganisms arriving with saliva and food . The stomach s activity keeps the number of microorganisms at minimum(10^3 - 10^5 /g of contents) unless obstruction at pylorus favors the proliferation of gram –positive cocci and bacilli.

The normal acid PH of the stomach markedly protects against infection with some enteric pathogens ,e.g. cholera .As the PH of intestinal contents becomes alkaline, the resident flora gradually increases .(Titov.*etal*,2000).

Clostridium difficile, common gram a positive, spore forming obligate, anaerobic bacilli. Accusing of nosocomial diarrhea associated with antibiotic therapy.

cl. difficile, cause a variety of diarrhea syndrome, including cl. Difficult diarrhea, cl. Colitis, all of which vary widely in severity (Fekety .1997) .

- pseudomembranous colits is an inflammation of the colon characterizes by the presence of elevated lesions ,or pseudomembrans, on mucosal surface cl. difficile is responsible for virtually all cases of pseudomembranous colitis (Zwiener,*etal*,1989).
- Antibiotic therapy is the key factor that is responsible for altering ,colonic flora and allowing cl. Difficult to flour. The colonization of cl.difficile occurs through the oral –fecal rout after antibiotic therapy has made the bowel susceptible to infection (Alfa. Mj *etal*,2002).

The binding of the toxins to membrane receptor s produce toxic effect , both toxin And B produce inflammation of mucosa and secret a protein – rich exudate that contain

neutrophils, monocyte, and sloughed enterocytes . Both toxins are also responsible for active cytokines release from monocytes. (Zwiener,*etal* 1989),(Kelly,*etal* 1994).

Toxin –producing strain of *cl. Siffrici* are carried in the normal colonic micro flora of Only about 5% of health adult . (Kelly, *etal*,1994),(Reike and Messlck,1994)and (Fekety, 1997).

- Neonatal resistance to *cl.difficile* colitis is believed to be due to the inability of the toxin to attach to the mucosa of newborn, because of immature membrane toxin receptors, or the protection from the toxin by maternity –acquired antibodies .After the first year of life , the carrier rate gradually ,reaching adult levels by three years of age.(Wilkins ,T.D, and *etal* 2003).

- Hospitalized patient , especially those receiving antibiotics therapy , are primary targets for *cl. difficile*. (5-38%) of patients receiving antibiotics experience antibiotic associated diarrhea; *cl. difficile* caused (15-20)%of the cases ; (Fekety,1997,Macloren,*etal*, 1997).

Materials and method

(50) stool samples were collected from patient below 10 years from pediatric Hospital ,during the period from 2/1/2007at AL-Dewaniya city .

Equal volume of normal saline was added to the stool sample (usually liquid sample) to the avoid dryness , 1ml of the mixture was mixed with equal volume of absolute alcohol, the mixture was shaken for ½ hr. the following steps were done :

1. Direct method :Loop full from this mixture was transferred on to (cycloserine cefoxitin fructose agar),plates were incubated by Gas pak anaerobic jar from 48 hrs .at 37 C.
2. Indirect method :
10ml of cooked meat medium were incubation with 0.1 ml of alcohol-stool mixture , incubate by Gas pak anaerobic jar for 48 hrs. at 37C.
3. Loop full from incubated cooked meat medium was transferred on to blood agar and selective media mentioned above , plates were incubated anaerobically for 48 hrs at 37C.
4. 1ml of alcoholic –stool mixture was transferred directly on blood agar plates and selective media :all plates were incubated (by Gas pak anaerobic jar) for 48 hrs.

Result and Discussion

This study revealed that none of subjects yield any positive (+ve) result for *Clostridium difficile*.

This result even it is a negative one but still consist an important result which may open a new field for the old assumption that *cl. difficile* is quiet normal and familiar among children ,this study though that more of study should be done to confirm this result before final conclusion could be dropped. AL patient included in this study were under an antibiotic treatment for different period of time. Unfortunately the negative result which had been obtain in this study dropped this dream away .The result could be discussed according to fact that *cl.difficile* is not easy one to isolate and the abundance of this existence is low (LER,MA,*etal*,2003) on this study thought that the condition dominate the gastrointestinal tract could alter the situation which contribute to this result .

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