SUMMARY

C.difficile is the most common cause of nosocomial diarrhea. It is an important cause of morbidity and is frequent cause of mortality among hospitalized patients ***(Brar and Surawicz, 2000).***

Antibiotics are the most frequently associated with aquistion of *C.difficile* infection. Antibiotics alter the fecal flora allowing overgrowth of *C.difficile* with production of its toxins ***(Mylonakis et al., 2001).***

This work aimed to determine the prevalence of *C.difficile* in stool samples from patients suffering from diarrhea after prolonged use of antibiotics, to evaluate the role of *C.difficile* in antibiotic associated diarrhea and to determine which antibiotics are most often responsible.

In this study, 80 individuals were included and divided into 3 groups :

Group I : (Hospitalized diarrheal patients) :

Consisted of 40 hospitalized patients, who received antibiotics and developed diarrhea.

Group II : (Hospitalized non-diarrheal patients) :

Consisted of 20 hospitalized patients did not suffer from diarrhea.

Group III : (Control group) :

Consisted of 20 normal apparently healthy subjects.

Each of the 60 hospitalized patients were subjected to full history taking and thorough clinical examination.

Diarrheal fluid or stool samples were collected from the 80 subjects and examined for detection of *C.difficile* and its toxins by :

1- Anaerobic stool culture on the following media :
   - CCFA media.
   - Blood agar media after alcohol shock.
2- EIA.
3- Cell culture assay.

The following results were obtained after the previous investigations were done :

1- Toxigenic *C.difficile* was found in 4 out of 40 patients of hospitalized diarrheal group (group I) with incidence rate of (10%).
2- *C.difficile* was isolated from 2 out of the 4 positive cases.
3- *C.difficile* and its toxins cannot be detected neither in the hospitalized non-diarrheal group (group II) nor in the healthy control group (group III).
4- High incidence rate of toxigenic *C.difficile* was found in the stool samples of patients aged > 50 years old (75%) than patients < 50 years old (25%).
5- Females were predominent in the *C.difficile* toxin assay positive cases (CDTA) (75%).
6- High incidence rate of toxigenic *C.difficile* was found in the stool samples of patients stayed in the hospital more than 10 days (75%) than those stayed between 3-10 days (25%).
7- The hospitalized diarrheal patients with malignant diseases had the highest rate of toxigenic *C.difficile* (50%) followed by patients with

gastro-intestinal surgeries (25%) and patients with liver diseases (25%).

8- Tube feeding was a significant risk factor for aquisition of *C.difficile* in (75%) of CDTA +ve cases.

9- The presence of fever and abdominal pain are significant features in all CDTA +ve cases (100%).

10- Duration of diarrhea > 5 days, frequency of diarrhea > 10 motions/day and onset of diarrhea within 1-10 days of antibiotics therapy all are significant features in most (75%) of CDTA +ve cases.

11- Patients received intravenous cephalosporins had the highest rate of toxigenic *C.difficile* (75%) followed by patients received intravenous ampicillins (25%).

CONCLUSIONS

1- *C.difficile* is an important pathogen associated with nosocomial diarrhea.

2- *C.difficile* was found to be responsible for 10% of AAD cases in this thesis.

3- Cephalosporins and ampicillins were the antibiotics most often associated with CDAD.

4- Risk factors significantly associated with CDAD in this thesis were : advanced age, prolonged hospital stay, tube feeding and more severe underlying illness which were : malignant diseases, gastro-intestinal surgeries and liver diseases.

5- The most important clinical predictors of positivity for CDAD were : fever, abdominal pain, frequency of diarrhea > 10 motions/day, duration of diarrhea > 5 days, and onset of diarrhea within 1-10 days after administration of antibiotics.

RECOMMENDATIONS

1- Avoid the misuse of antibiotics in hospitals and by general population.
2- Avoid prolonged hospital stay.
3- Routine investigation for *C.difficile* and its toxins in all patients of nosocomial diarrhea and AAD.
4- Proper treatment of positive cases to avoid cross infection.
5- Preventive measures as health education programmes and intensive environmental disinfection.
6- We recommend the use of tox A/B test of EIA as it can detect isolates which can be missed by tox A-specific EIA.
7- We recommend the use of blood agar for isolation of *C.difficile* after alcoholic shock treatment of stool specimens as being effective cheap method.