SUMMARY AND CONCLUSION

Typhoid fever remains an important public health problem in many parts of the world. Rapid and Sensitive laboratory methods for diagnosis of typhoid fever are essential for prompt and effective therapy (**Song *et al.***, 1993).

Typhoid fever may mimic a variety of infections diseases during the initial phase, many patients have already been on antibiotics before admission, especially in countries where diagnostic facilities are limited (**Hoffman *et al.***, 1984).

This study was designed to compare different culturing and serological techniques used in the diagnosis of enteric fever, to find the most rapid, sensitive and specific test for early diagnosis of typhoid fever. The study also aimed to evaluate the problem of salmonella multi drug resistance in Egypt.

The study was done on 312 patients admitted to Abbassia fever hospital from April 2000 to April 2002. One hundred ninety one patients proved to have typhoid fever by laboratory diagnostic tests including different diagnostic blood culturing techniques and stool culture and serological tests.

From this study it was found that:

1- The most rapid blood culture technique was lysis centrifugation culture (Isostate culture) with average time 1 day, but it was less sensitive (43%) than conventional blood culture (55%). Isostate culture is easy to perform, needs only 30 minutes centrifugation.

2- The simplest blood culturing technique was bile streptokinase culture (Clot culture) which had nearly the same sensitivity (58%) as the conventional blood culture (58%). It takes nearly the same average time 2.6 days as the conventional blood culture 2.8 days. The advantages of this technique are: (1) it is selective for salmonella

species and (2) it inhibits the growth of skin contaminants. (3) It is economic method and (4) can be performed in laboratories when blood culture technique is not available, also (5) the separated serum can be used for serological diagnosis of typhoid fever.

3- The conventional blood culture is still a seneitive blood culture technique (55%) but it takes more average time (2.8 days) for isolating the organism. It has advantage of isolating different micro-organisms other than salmonella.

4- Stool culture had a limited value in the diagnosis of acute typhoid fever with sensitivity (13%).

5- Serological examination for salmonella antibodies by widal tube agglutination test helped in the diagnosis of 76.4% of typhoid cases. It is of great importance especially in young age.

6- Modified widal test using 2 mercaptoethanol help in confirmation of acute typhoid cases.

7- The highest isolation rate of salmonella strains from blood (47%) was obtained by using both conventional blood culture can detect salmonella species within 24 hours and in case of false negative results due to low number of bacteria (C.F.U. ml) we still have the chance for isolation of salmonella by the convential blood culture.

8- All salmonella strains 127 (100%) isolated in the study were sensitive to third generation cephalosporins and quinolones and only 41 (32%) were resistant to chloramphenicol which is still the drug of choice in treatment of typhoid fever in fever hospitals.

Conclusion and Recommendation

1- Blood culture and serological tests should be used together in the diagnosis of typhoid fever.

2- A combination of convential blood culture and isostate culture is proved to be the most rapid technique and it gives the highest isolation rate of salmonella strains. Only 10 ml blood could be enough for both techniques the cost will be reduced as the lytic solution will be prepared.

3- Antibiotic sensitivity test should be done for all salmonella isolates to detect multi drug resistant strains (MDR).

4- As only 32% of isolated salmonella strains found to be resistant to chloramphenicol it is recommended to begin therapy of enteric fever by chloramphenicol in the proper dose and route. If the general condition of the patient does not improve after 5 days therapy or if complications as typhoid haemorrhage or perforation or blood culture revealed M.D.R. salmonella, the patient should be treated by either quinolones or third generation cephalosporins.