MULTI –DRUG RESISTANT *VIBRIO CHOLERA* SEROTYPE *OGAWA* ISOLATES FROM THE 2015 CHOLERA EPIDEMIC IN KENYA

DR.S.K NJENGA, SUSAN GITHII[1], ANTHONY KURIA[2]

ABSTRACT

BACKGROUND

- Cholera affects an estimated 3-5 million people worldwide and causes about 120,000 deaths annually.
- The ongoing and 7^{th} global pandemic has been attributed to *vibrio cholerae* of the 01and 0139 serogroups, 98% of the cases are in Africa.

Cont:

- In 2015 Kenya has been facing a cholera epidemic that has affected 22 counties. As in other epidemics antibiotic sensitivity tests were carried out on the isolates at Kenyatta National Hospital (KNH) and at the National Public Health Laboratories some of the isolates were multi drug resistant.
- This confirms findings in other epidemics in Africa and Asia that cholera is not only a reemerging infectious disease but is also associated with infection by multi drug resistant bacteria.
- The cholera pandemic is probably being sustained by multi drug resistant *vibrio cholerae* strains.

PURPOSE OF STUDY

- The review of laboratory data was done to delineate the antibiotic susceptibility profile of *vibrio cholerae* isolates.
- The information was to be disseminated for use by clinicians and policy-makers involved in cholera management.

METHODOLOGY

- It was a Retrospective study which involved review of data from Kenyatta National Hospital Microbiology laboratory and the National Public Health Laboratories Microbiology Laboratory. The review was done in the 2nd and 3rd weeks of August 2015.
- Antibiotic sensitivity Testing results from *vibrio cholera*e isolates during the period January 31st 2015 – July31st 2015 were reviewed. The data from KNH was for 41 isolates and from NPHLS was for 83 isolates. The data from KNH was for the period 1st march 2015 – June 30th 2015 and that from NPHL was for the period January 31st2015 – July 2015.
- The two sets of data were reviewed separately. The data had been recorded manually in laboratory registers which were available for review. During the review the data was also entered and stored in excel data bases at the two facilities.

FINDINGS

KNH

- 41/41 isolates were multi-drug resistant(resistance to more than two antibiotics)
- 41/41 isolates were resistant to erythromycin, co-trimoxazole, ampicillin, and nalidixic acid.
- 41/41 isolates were sensitive to ciprofloxacin ,chloramphanicol and doxycyline.

Cont:

NPHLS

- 8/83 isolates were multi-drug resistant
- 83/83 isolates were resistant to erythromycin
- 30 /83 were resistant to ciproflox acin
- 11/83 isolates were resistant to Ampicillin
- 8/83 isolates were resistant to tetracycline

LIMITATIONS

- Incorrect entries
- The antibiotic test panels used in the two laboratories were not similar e.g (at NPHLS doxycycline and chloramphenicol were not in the test panel.)
- Observer variation in recording inhibition zone diameters may have resulted in incorrect categorization

CONCLUSION

- In the 2015 cholera epidemic in Kenya there were multi drug resistant *vibrio cholerae* isolates.
- There was universal resistance to erythromycin.
- There were ciprofloxacin resistant strains

Cont:

- From the findings it can be recommended that clinicians stop using erythromycin for antibiotic therapy and chemo-prophylaxis. The use of doxycycline in non-pregnant adults is still appropriate. Chloramphenicol and tetracycline are still appropriate alternatives.
- The use of ciprofloxacin should be guided by antibiotic sensitivity test results for local isolates during an epidemic.
- Molecular characterization of antibiotic resistance in isolates from the 2015 epidemic which would enrich our knowledge on the specific resistance genes carried by the isolates is recommended.

Cont:

- Information from this study and from molecular studies would then inform a review of the National guidelines on clinical management of cholera.

ACKNOWLEGEMENTS

1 NATIONAL PUBLIC HEALTH LABORATORIES

2 KNH MICROBIOLOGY LABORATORY

THANK YOU