

Burden & differential features of cholera & non-cholera watery diarrhea among under-5 children: a case-control study in Bangladesh

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Leaving the hospital, next day

Background, Rationale and Objective

- Liquid or watery diarrhea (WD), either cholera or not is a universal health problem among infants & young children including Bangladesh.
- Data on epidemiology & differential features of cholera & non-cholera WD are limited & this information is helpful in proper management of WD to avoid &/or control the unethical use of antibiotic (that is indicated in cholera if there is significant WD & dehydration).
- This study aimed to assess the case load of cholera & non-cholera WD & what are the differential features between them.

Study Method

- This **study** was carried out using the data collected between 1996-2014 in a hospital-based Diarrhoeal-Disease-Surveillance-System (DDSS) in the 'Dhaka Hospital' of the International Centre for Diarrhoeal Disease Research, Bangladesh (**icddr,b**).
- The DDSS enrolls a **2% systematic sample**, regardless of age, sex, & diarrhea severity.
- The DDSS of icddr,b has been **approved by IRB** of icddr,b.
- The data included information on socio-demographic factors, environmental history, clinical characteristics, nutritional status, & diarrhea pathogens.

Results

- **Total 21,626 U-5 children were studied**
- Of them **20,936 (96.8%)** children were admitted with features of WD (& their rectal swab/stool culture report were shigella negative), & their **data were analyzed.**
- **Age (mean $\pm$ SD): 14.8 $\pm$ 11.6 months**
- **Girl: 40.3%**
- **Cholera: 2264 (11%)**
- **Non-cholera WD: 18672 (89%)**



Logistic regression analysis

	Sig	OR	95% C.I. of ORs Lower - Upper	
Age > 12 months	0.000	3.23	2.10	4.97
Stool frequency > 10 during last 24 hrs	0.001	1.98	1.33	2.93
No abdominal pain	0.011	0.57	0.37	0.88
Some or severe dehydration	0.000	3.39	2.26	5.08
Predominant breast feeding up to 6 months (among > 6 months group)	0.003	0.43	0.25	0.75
In warmer months (April-September)	0.039	1.53	1.02	2.29
Illiterate mother	0.060	1.57	0.98	2.52
Mother works out of home	0.016	1.85	1.12	3.04
Constant	0.000	0.02	-	-

Other non-significant variables in logistic regression model

- Watery liquid stool without mucous or blood in stool
- Fever on admission
- Wasting (WHZ <-2)
- Stunting (HAZ <-2)
- Family member had diarrhea within last 7 days
- Received antibiotic before hospital reporting
- No treatment of drinking water
- Illiterate parents
- Slum residence
- Not receiving vitamin A supplementation in last 6 mo (among 13-60 mo group)
- Used non-sanitary latrine
- History of diarrhea in last 30 days &
- History of cough or fever in last 30 days.

Key finding

Associated or risk factors of cholera

- ☐ Age >12 months
- ☐ Stool frequency >10 per 24 hours
- ☐ Some or severe dehydration
- ☐ Warmer month (April-September) &
- ☐ Working mothers

Protective factors of cholera

- ☐ Absence of abdominal pain &
 - ☐ Predominant breast feeding during first six months of life were found
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- Relatively more children with cholera needed:
 - Inpatient admission &
 - Intravenous fluid
 - Fatality rate was very low in both group:
 - 0% in cholera &
 - 0.1 % in non-cholera children

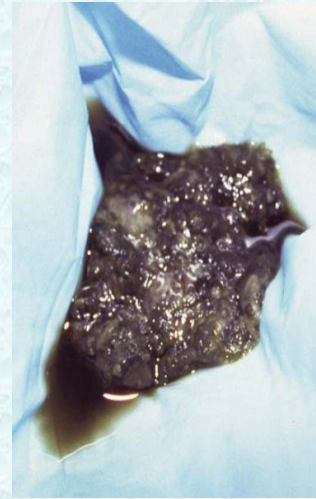


Summary

- ~ 11 % of all watery diarrheal cases in U-5 children are cholera & the rest (most common cause) 89% of diarrheal illness non-cholera WD.
- The above mentioned associated or risk factors in under-5 children would help to differentiate non-cholera WD (who do not need any antibiotic) from cholera
- That would help in reducing the rampant use of antibiotic & appropriate management of diarrheal illness in U-5 children.

Stool Inspection

Rotavirus



Shigella

ETEC (& Cholera)



Cholera (typical)



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