

Necessity of integrated surveillance of rotavirus diarrhea to the other enteropathogens including care-associated infections

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Introduction

The incidence of rotavirus infections in severe gastroenteritis in children under 5 years hospitalized in Kalembe Lembe Hospital is very high (65.5%); we observed a high lethality among Rotavirus-negative children than in the positive 2.05 CI [1.33-3.03] vs. 3.9 CI [2.55-5.82] even though this difference is not significant at 95% CI $p = 0.015$. This led us to believe that there would be other germs than rotavirus involved in severe gastroenteritis in children under 5, included in our surveillance.

Usually, the following germs are described in the literature : Protozoa (Entamoeba histolytica, Giardia lamblia), Bacteria (Salmonella, Entero - pathogenic Escherichia coli, Shigella ssp, Vibrio ssp, Campylobacter) and Virus (Norovirus Adenovirus, ...). That why, we thought of setting up a protocol to extend the surveillance of Rotavirus to the germs mentioned above, noting that additional support is required for the search for other viruses.

Objectives

Determine the share of other germs involved in severe cases of gastroenteritis among children under 5 years of age. Determine the lethality share for each germ involved in the causes of severe acute gastroenteritis in children under 5 years of age. Describe the interest and demonstrate the feasibility of integrated surveillance with other enteropathogens in the control of healthcare-associated infections.

Methods

On each sample was carried out the search for Rotavirus by:

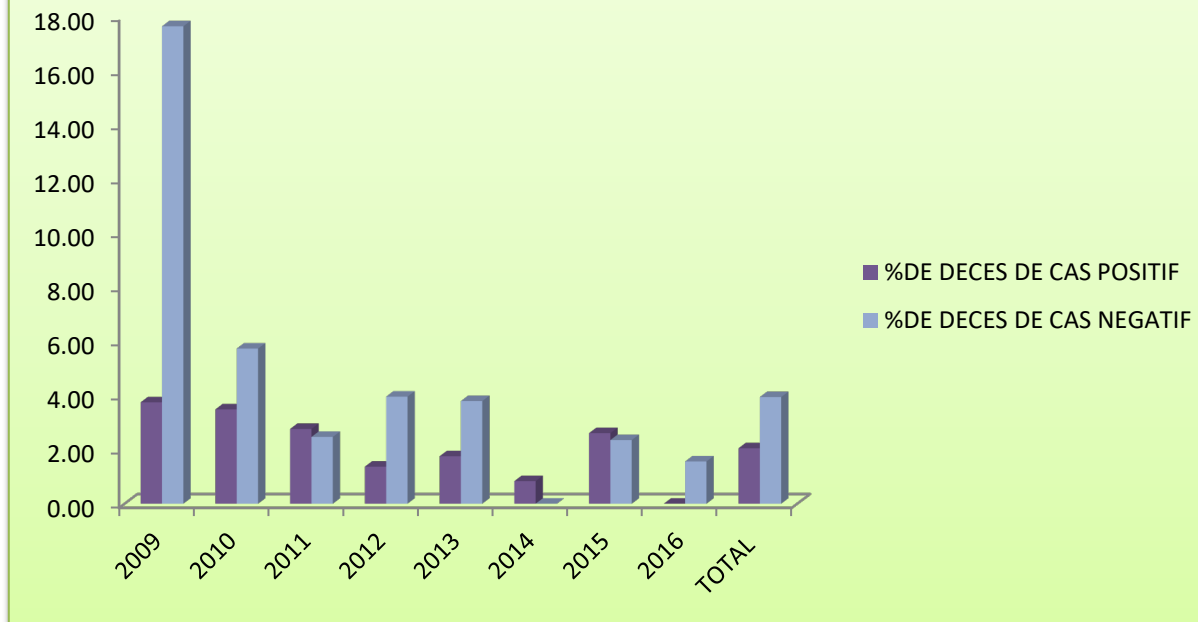
- Elisa
- Test stool for culture
- Bacteriology test for negatives rotavirus samples

Lethality in severe acute diarrhea in children under 5 years from 2009 to 2016 at the Kalembe Lembe sentinel site, DRC

YEAR	ANALYSED CASES	POSITIVE CASES			NEGATIVE CASES		
		SAMPLE	NUMBER OF DEATHS	%DEATH	SAMPLE	NUMBER OF DEATHS	%DEATHS
2009	114	80	3	3,75	34	6	17,65

2010	294	172	6	3,49	122	7	5,74
2011	298	217	6	2,76	81	2	2,47
2012	320	219	3	1,37	101	4	3,96
2013	250	171	3	1,75	79	3	3,80
2014	188	120	1	0,83	68	0	0,00
2015	200	115	3	2,61	85	2	2,35
2016	190	126	0	0,00	64	1	1,56
TOTAL	1854	1220	25	2,05	634	25	3,94

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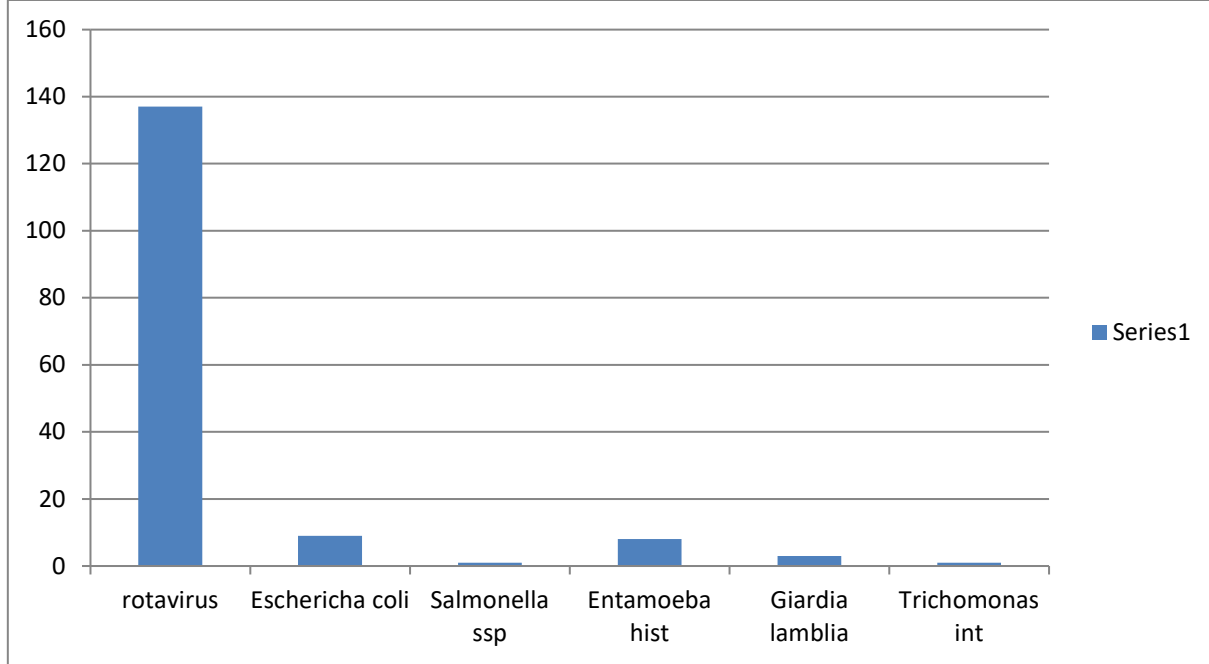


Results from 108 samples of severe acute diarrhea under 5 years from January 2017 to July 2018

	ROTAVIRUS POSITIVE		ROTAVIRUS NEGATIVE	
	FREQUENCY	OTHERS PATHOGENS	FREQUENCY	OTHERS PATHOGENS

ELISA	137		66	
PARASITOLOGY	137	0	66	8 (E. hy stolitica) 12.1% 3 Giardia lamblia 4.5% 1(trichomonas int) 1.5 %
BACTERIOLOGY	0	ND	66	9(E. coli enteropathogene) 13.6% 1 (Salmonella ssp) 2.7%

FREQUENCY
OTHERS PATHOGENS



Conclusion

Mortality in acute severe gastroenteritis cases among Rotavirus negatives patients is high compared to the positive cases. These results demonstrate the importance of extending rotavirus surveillance to other enteropathogens, which may contribute to improved management in children under five years hospitalized at Kalembelembe Hospital and the control of germs.