Bacterial Profile of Suspected Typhoid Intestinal Perforation Cases, Regional Hospital Centre, Maradi, Niger

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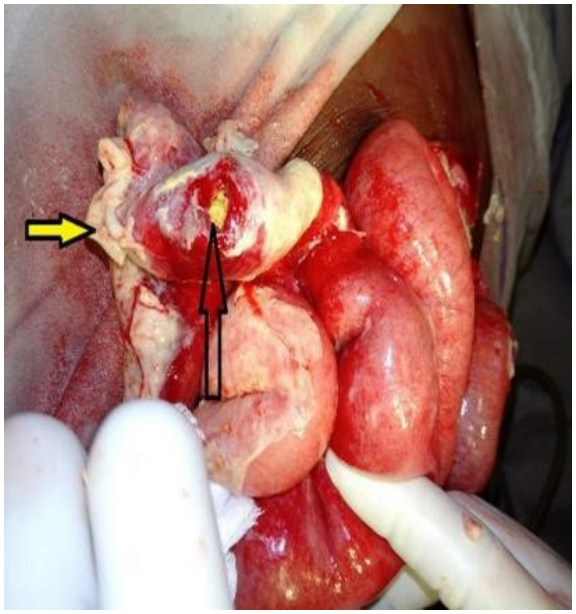
Outline

- Introduction
- Materials and methods
- Results
- Discussion
- Conclusion

Introduction

- Typhoid fever is a major public health crisis in Niger
  - Blood culture confirmation remains rare
- Patients often present with typhoid intestinal perforations (TIP)
  - Pathognomonic finding: longitudinal, oval, anti-mesenteric perforation of the intestine
- Typhoid and TIP occurs most commonly in school-aged children



Introduction

- Maradi has the highest frequency of typhoid perforations in the country

Regional Hospital center of Maradi is one of the largest 2nd type of health care.

- **450 beds with 30% for the general surgery**
- **6 attending general surgeons**
- **Yearly about 1500 patients were operated for acute abdomen**
- **41% account for the case of TIP (71% <17 years).**

Introduction

- TIP is related with a load of surgeries

❑ immediate:

- ostomy (ostomy restoration…)
- tertiary peritonitis (dehiscence anaestomosis of or wound)

❑ Intermediate

- Tertiary peritonitis
- intestinal obstruction (frange)

❑ long term

- intestinal obstruction (frange)
- incisional hernia …..

- lengthening hospital stay
  - Increase burden
  - No school

Purpose

First prospective blood culture study on pediatric TIP patients in Niger

Objectives:

- To describe the bacterial profile of TIP
- To understand local antimicrobial resistance patterns.

Methods

- Participants enrolled from Oct - Nov 2022
  - Inclusion Criteria
    - < 15 years of age
    - Suspected TIP requiring surgery
- Blood culture collected from participants
  - Sent to Epicentre lab for culture and sensitivity testing
  - Positive cultures sent to CERMES lab for confirmation

Results

Enrolled 50 Participants:

- 56% Male, 44% Female
- Mean age: 6.9 (range 18 month – 14 years)
- 89% of patients were transferred from an outside health facility
- 88% of participants recieved antibiotics prior to blood culture collection

Table 1: Blood culture isolates

Germes isolés dans les hémocultures	Nombre
Salmonella Typhi	8
E. coli	4
Salmonella non-Typhi	3
Serratia marsescens	1
Streptococcus spp	2
Total	**18**

18 (36%) samples were positive.

- 8 (44%) positive for *S.* Typhi
- 3 (16%) positive for NTS

Table 2: Antimicrobial Sensitivity

Antibiotiques	Total, n = 16	*Salmonella* Typhi, n = 8	*E. coli*, n = 4	*Salmonella spp*, n = 3	*Serratia marsescens*, n = 1
Ampicilline	0 (0%)	0	0	0	0
Amoxicilline/Acide clavulanique	9 (50%)	6	0	3	0
Piperacilline/Tazobactam	2 (11%)	2	0	0	0
Ceftriaxone	11 (61%)	8	0	3	0
Ertapenem	15 (83%)	8	4	3	0
Meropenem	16 (89%)	8	4	3	1
Gentamicine	12 (67%)	8	1	3	0
Amikacine/Tobramycine	16 (89%)	8	4	3	1
Ciprofloxacine	1 (5.6%)	0	1	0	0
Cotrimoxazole	0 (0%)	0	0	0	0
Azithromycine		7	Non testé	Non testé	Non testé

100% *S.* Typhi isolates resistant to ciprofloxacin, ampicillin, cotrimoxazole

Discussion

- 16% of suspected TIP patients have typhoid blood culture confirmation
  - 10-15% TIP culture positivity rates previously reported in the literature
  - Low positivity likely due to previous antibiotic use and prolonged illness
- 100% typhoid quinolone resistance in Niger
  - Ciprofloxacin is first line treatment of uncomplicated typhoid in Niger
  - Indicator of developing antimicrobial resistance in the region

Conclusion

- TIP is frequent in our institution
  - High morbidity, mortality, and economic burden
  - Impairs day to day surgical activities

- TIP is preventable
  - Improvements in water, hygiene and sanitation
  - Introduction of typhoid conjugate vaccine (TCV)

Thank you

Bibliography

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