

Dengue in Children

National Referral Hospital

Honiara, Solomon Islands



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AIM

To describe the presentation, management and outcome of children admitted with dengue at NRH.

Background

- 1/2 of world's population at risk– Reported outbreaks in Asia (2012, 2013), Europe (2012) & Africa (2012)
- Regional – Yap, FSM 2011 (1224 reported cases), Korsae FSM 2012-2013 (720 reported cases) , Solomon Islands 2003 & 2013 (5254 reported cases)
- Dengue a viral infection - four serotypes transmitted by female *Aedes* mosquito
- Dengue virus in SI most closely resemble strains of DEN V 3 that have been circulating in PNG for the last three or four years.
- DEN V3 associated with higher rates of haemorrhage

Background

- Symptoms appear in 3–14 days after infective bite. Can lead to haemorrhagic fever, plasma leakage & shock
- Early recognition of warning signs and appropriate management can prevent complication and death.
- Vaccines on clinical trial. None on the market

Methodology

Study Design

- A descriptive study with data collection
 - retrospective (Jan-April, 2013)
 - prospective (May, 2013)

Study population/setting

- All children admitted to the NRH, aged between 0- 14 years old with the provisional clinical diagnosis of severe Dengue fever based on the CDC case assessment
- Severe dengue cases required presumptive diagnosis and warning signs.

Methodology

Study sample

- A total of 76 children
 - Retrospective - 45
 - Prospective - 31

Data collection method

- Solomon Islands dengue admission registries, case notes & discharge forms
- Analysis by SPSS version 10

Shock Definition

- Compensated:
 - Two or more of the following markers of poor peripheral perfusion
 - Cool or cold extremities
 - Capillary refill time over 2 sec
 - Weak pulse
- Decompensate
 - One of the markers of poor perfusion PLUS hypotension for age

Results

- 76 records of children admitted with dengue
- Sex: Male 39, Female 37
- Median age of 10.5 years (IQR of 7-12 years)
- Median duration of admission 4 days (IQR of 3-6 days)
- Missing data of symptoms for 12 (16%) patients (excluded below)

Final Diagnosis (n)	Abdo pain	Persist Vomit	Ascitis	Pleural Effusion	Seizure	Coma	Focal neuro finding
Dengue without bleeding (39)	26 (67%)	23 (59%)	3 (8%)	5 (13%)	4 (10%)	1 (3%)	1 (3%)
Dengue with bleeding (25)	16 (64%)	16 (64%)	3 (12%)	2 (8%)	1 (4%)	0	0

Results

- 25 cases presented with bleeding
- Dengue without bleeding median lowest recorded plt 100 (23 /39 cases tested)
- Dengue with bleeding median lowest recorded plt 83 (22 / 25 cases tested)
- Median haematocrit same between groups (highest 0.39 and lowest 0.36)

Site of Bleeding						
	Gum or mouth	Nose	Vomit blood	PV bleed	Ear	Skin
Number = 25	6 (54%)	6 (54%)	9 (81%)	4 (36%)	0	0

Results

Final Diagnosis	Shock	IV Fluids	Oral Fluids	Blood Transfusion	Oxygen	Death
Dengue without bleeding (n=39)	8 (21%)	38 (97%)	1 (3%)	0	1	1
Dengue with bleeding (n=25)	8 (32%)	20 (80%)	5 (20%)	2	1	0

Final Diagnosis	Serology						
	Neg	NS1	IgG	NS1 IgM	IgG IgM	IgM	NS1 IgG IgM
Dengue without bleeding (n=21)	2 (9%)	15 (71%)	1 (5%)	1 (5%)	1 (5%)	0	1 (5%)
Dengue with bleeding (n=11)	2 (18%)	7 (64%)	1 (9%)	0	0	1 (9%)	0

Discussions

- DNV 3, similar to strain of virus in PNG
- 19% of all cases admitted to NRH were children
- Affected both sexes equally
- More common in children 7-12 yrs, who are more likely to be exposed to the virus due to outdoor play behaviour
- Abdominal pain and persistent vomiting most common presenting symptoms
- 25/64 (39%) with bleeding, 2 required blood transfusion

Discussions

- 25% presented with shock; unable to tell if decompensated due to no paediatric BP cuff
- IVF a common treatment initiated in A&E in children with poor oral intake regardless of haematocrit
- The only death was a case initially screened as non-severe dengue who was not admitted but represented unconscious and in shock
- Identifying co-morbid infections a challenge due to non-specific symptoms
- Reduced data availability due to inadequate documentation and pathology results

Conclusions

- We report the first detailed description of an outbreak of severe dengue in children at NRH, in Solomon Islands
- Apply lessons learned for future epidemics
- Raise public awareness & implementation of clean environment, bed nets, indoors

Acknowledgements

- Hospital team (NRH) – Administration, doctors, paramedics, nursing, logistics, domestic cleaners
- Special thanks to medical & Orthopaedic team
- NRH Paediatrics Team
 - Dr Divi Ogaoga– Child Health (MHMS)
 - Dr Titus Nasi - HOD
 - Dr Carol Titiulu (consultant)
 - Registrars, RMO
 - CWD nurses
- Dr Paulus Ripa (UPNG SMHS)
- Dr Rami Subhi(Melbourne University)
- Dr Andrew Boyd (WHO Consultant)
- Patients & guardians/parents
- Family members

References

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