2144 Duration of perioperative antibiotic prophylaxis in ventriculoperitoneal shunt surgery in children

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Background

The duration of antibiotic prophylaxis for ventriculoperitoneal (VP) shunt placement in pediatrics is not well established. Our antimicrobial stewardship program (ASP) team recommended to stop perioperative antibiotic prophylaxis for sterile medical placement within 48 hours following surgery in April 2017.

Objective

To evaluate rate of VP shunt-associated infections following shunt placement between children received < 48 hours and ≥ 48 hours of perioperative antibiotic prophylaxis.

Methods

Study design: a single-center, retrospective study
Setting: Tokyo Metropolitan Children's Medical Center
Study period: Apr 2014 - Nov 2021
Practice
- Pre-intervention: stop perioperative antibiotic prophylaxis at the determination of the surgeon
- Post-intervention: within 48 hours following surgery

Inclusion criteria: children aged 15 years old or younger underwent VP shunt insertion
Exclusion criteria: received antibiotics for any other infectious diseases, re-inserted after VP shunt related meningitis
Data collection: patient background (age, gender, underlying disease, history of CNS infection), reason of surgery, antimicrobial agents, duration, VP shunt-related meningitis within 1 or 6 months
Outcome: Primary outcome was rate of VP shunt-associated meningitis following 1 months and 6 months of post-surgical periods were compared between children who received < 48 hours and ≥ 48 hours of perioperative antibiotic prophylaxis.

Results

Table1. Comparison of patient characteristics

Characteristics	< 48 hours (n=43)	≥ 48 hours (n=41)
Female, n (%)	21 (49)	17 (41)
Age months, median (IQR)	7.5 (2-35)	3 (0-48)
Underlying disease for hydrocephalus		
Brain tumor	7 (16)	7 (17)
Meningeal aneurysm	9 (21)	8 (20)
Post brain hemorrhage	10 (23)	5 (12)
Post meningitis	3 (7)	3 (7)
Others	14 (33)	18 (44)
History of CNS infection		
Yes, n (%)	6 (14)	5 (12)
Reason of surgery		
Insertion	26 (60)	28 (68)
Revision	15 (35)	8 (20)
Insertion after EVD*	2 (5)	5 (12)
Antimicrobial agent		
Cefazolin	42 (98)	41 (100)
Cefazolin+Vancomycin	1 (2)	0
Duration		
< 24hours	2 (5)	-
≥ 24 hours, < 48hours	41 (95)	-
≥ 48 hours, < 72hours	-	36 (88)
≥ 96 hours, < 120hours	-	3 (7)
≥ 120 hours	-	2 (5)

* External ventricular drain

Figure1. Enrollment of patients

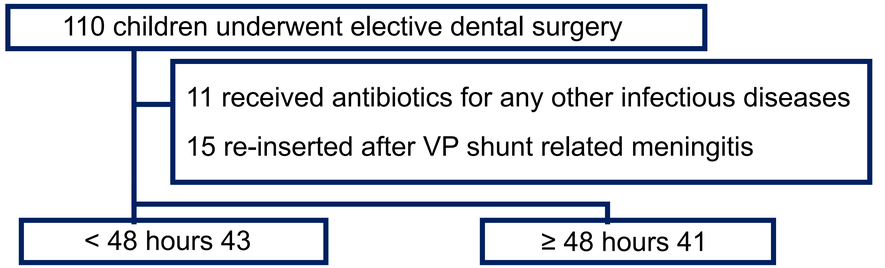

Table2. Primary Outcome (< 48 hours vs ≥ 48 hours)

Incidence of VP shunt-associated meningitis	< 48 hours	≥ 48 hours	*p* value
For 1 month of post-surgical period (%)	4.7	12	0.211
For 6 month of post-surgical period (%)	12	12	0.936

Conclusion

Shorter duration of < 48 hours of perioperative antibiotic prophylaxis did not increase rates of VP shunt-associated infections among children in short and long terms.

The authors declare no conflict of interest associated with this article.