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Practice Survey of Prophylactic Antibiotic Use in Pediatric Orthopedics

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Revised Abstract

Background: Increased incidence of surgical site infection (SSI) after pediatric orthopedic surgery, particularly after High risk spine surgery warns for preventive strategies with appropriate use of antibiotic prophylaxis (AP).

Methods: A limited national survey of 96 orthopedic programs across United States was conducted. We used Survey Monkey with enhanced security properties. It is a qualitative study and we included 4 procedures, each with specific risk factors for SSI. We aim to survey members of pediatric orthopedic society of North America to validate our results.

Results: 119 started and 86 completed the survey (72%). Training: 64 (54%) attending, 46 (39%) residents, 1 nurse practitioner (1 %) and 7 (6 %) physician assistants. Fellowship: 64 (56%) not trained, 35 (30%) pediatric, 7 (6%) spine, 7 (6%) trauma and 4 (3.5 %) oncology. Experience: 59 (50%) 1-5 yrs, 19 (16%) 6-10 yr, 18 (15%) 11-20 yrs and 22 (18%) have > 20 yrs.
In spinal fusion for neuromuscular scoliosis, antibiotic use: 40 (51%) cefazolin, 21 (23 %) vancomycin, and 11 (15%) use combination with gentamicin (6), tobramycin (1) and ceftriaxone (2), 7 (9%) clindamycin. Timing: 21 (27 %) continue AP > 24 hrs. MRSA screen is not done by 44 (59 %).
In spinal fusion for idiopathic scoliosis, antibiotic use: 61 (83%) cefazolin, 8 (10%) vancomycin and combination 2 (2 %). Timing: 16 (23 %) continue AP > 24 hrs. MRSA screen is not done by 41 (61%). In supracondylar fracture with open reduction, antibiotic use: 75 (97 %) cefazolin, Timing: 14 (19%) continue AP > 24 hrs. In tibial fracture with closed reduction, antibiotic: 75 (98%) cefazolin. Timing: none use >24 hrs.

Conclusion: A greater variability of antibiotic choice is seen in spinal fusion procedure for neuromuscular scoliosis. Pre-procedural risk affects the length of AP use to be > 24 hours. Most do not use MRSA prevention strategies.

1. Introduction

- Surgical site infection (SSI) accounts for 46 % of all the operative complications after pediatric orthopedic surgery.
- Incidence of surgical site infection (SSI) in pediatric orthopedic surgery depends on host factors and the type of procedure.
- SSI is lower after idiopathic scoliosis repair (0.5-6.7%) as opposed to neuromuscular scoliosis repair (4.3-14.3%).
- Antibiotic prophylaxis (AP) is one of the modifiable factors shown to prevent SSI.

2. Hypothesis

We hypothesize overuse of antibiotic prophylaxis in High risk pediatric spine surgery and pediatric fracture with internal fixation device.

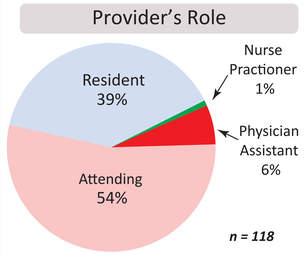
3. Methods

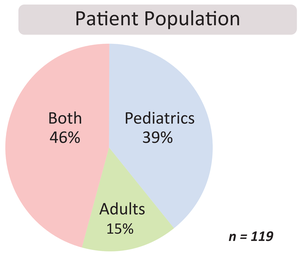
A limited survey of 96 orthopedic residency programs was conducted.
We used Survey Monkey with Enhanced security properties (SSL/HTTPS).

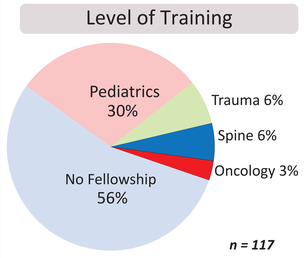
It is a Qualitative study including 4 orthopedic procedures, each with specific risks for surgical site infection:-
1-Spinal fusion for neuromuscular scoliosis (NS)
2-Spinal fusion for idiopathic scoliosis (IS)
3-Open supracondylar fracture
4-Closed tibia fracture

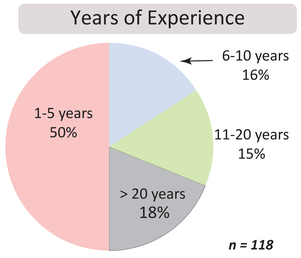
We took into account the surgeon's demographic and clinical information and collected data on the choice of antibiotic, timings, and Methicillin resistant Staphylococcus auerus (MRSA) screening strategies.

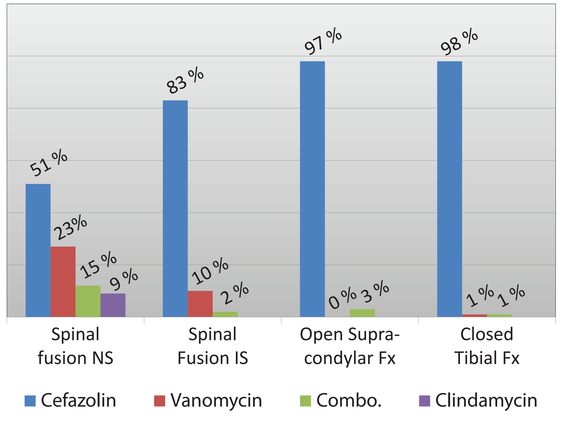
4. Results



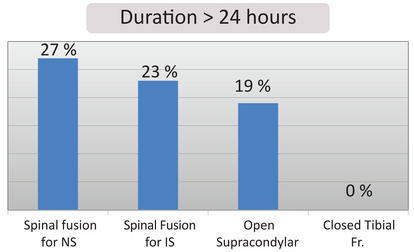


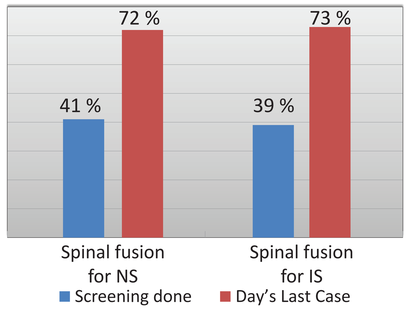






5. Results





6. Conclusion

- Greater variability of antibiotic choice is seen among surgeons in spinal fusion for neuromuscular scoliosis
- Type of procedure affects antibiotics usage > 24 hours
- Most surgeons do not employ MRSA screening

7. References

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- *Risk Factors for Surgical Site Infection in Children.* Casanova et al. Infec Cont Hosp Epidemiol, 2006