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The Educational Opportunities Provided by a Pediatric Orthopedic Urgent Case Review Conference: Keep Score to Provide a Better Experience

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OBJECTIVE: To evaluate the distribution of conditions presented at a case conference to assess resident educational exposure to acute pediatric orthopedic conditions.

DESIGN: Retrospective review of emergency department and inpatient consultations presented at a daily pediatric orthopedic case conference over a 3-year period. Consultations were divided into 3-month resident rotation blocks for analysis.

SETTING: Tertiary children's hospital in the southern United States which host residents from 2 orthopedic surgery residency programs.

PARTICIPANTS: The case conference is attended by pediatric orthopedic surgeons, 1 pediatric orthopedic fellow, and 4 PGY III/IV residents.

RESULTS: A total of 1762 consultations were presented at the conference. The consultations were obtained for traumatic injuries, 86.5% (1524/1762); infections, 7.7% (136/1762); and congenital/other problems, 5.8% (102/1762). The 3 most common consultations per rotation were fractures: both-bone forearm (mean, 46.1; range: 24-64), supracondylar humerus (mean, 23.8; range: 17-31), and distal radius (mean, 13.8; range: 7-33). Less common consultations per rotation were septic arthritis (mean, 1.6; range: 0-5), child abuse (mean, 1.3; range: 0-5), Monteggia fracture (mean, 0.3; range: 0-1), compartment syndrome (mean, 0.2; range: 0-1) and patella sleeve fracture (mean, 0.1; range: 0-1).

CONCLUSIONS: There was a large disparity between conditions in the number of times presented and reviewed within a 3-month rotation at the daily case conference, with some important conditions not being discussed at all in each rotation. This finding documents a disadvantage of case conferences based on limiting discussion to current patients, and highlights an opportunity for educational improvement. (J Surg Ed ▮:▮▮▮-▮▮▮. © 2017 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEYWORDS: resident learning, case-based learning, case conference, checklist

COMPETENCIES: Patient Care, Medical Knowledge, Practice-Based Learning and Improvement

INTRODUCTION

The goal of an orthopedic surgery residency is to provide comprehensive education about musculoskeletal diseases, including epidemiology, etiology, manifestations, anatomy, evaluation, and treatment options.[1] Providing residents with exposure to the wide range of orthopedic conditions became more difficult as implementation of the 80-hour work week created less opportunity for clinical work.[2-4] Demands upon attending physicians including increased productivity goals, extra time required using the electronic medical record, and the emergence of new surgical techniques[3] have further compromised time for teaching. Although the time for clinical exposure and teaching has decreased, the length of the residency program has remained the same. Therefore, it is necessary to monitor the clinical experiences of residents and

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to improve the efficiency of instruction[3] in order to provide the broad exposure needed within a 5-year residency.

One common teaching method used by residency programs is the case conference. Such conferences provide (1) patient care by reviewing conditions in need of treatment and (2) resident education by stimulating discussion about all aspects of the clinical problem. As a result, case conferences are a common way for orthopedic surgery residency programs to teach orthopedic trauma and urgent care, as there is a steady census of patients from emergency room and inpatient consultations in need of treatment plans. However, the quality of the case conference is intuitively limited by the types and numbers of cases that are presented over the time frame of a resident rotation. To our knowledge, the distribution of cases presented at a resident case conference has not been published.

We sought to assess the distribution of cases presented at a pediatric orthopedic emergency room and inpatient consultation case conference in a tertiary medical center, as an unequal distribution may negatively affect the quality of the conference. Our hypothesis was that we would find a large discrepancy in the overall and seasonal frequencies for different conditions.

MATERIALS AND METHODS

At our tertiary medical center, 30-minute conferences are held each weekday morning and are attended by pediatric orthopedic staff surgeons, a pediatric orthopedic fellow, a nurse practitioner, and 4 orthopedic residents from 2 residency programs. The first 10 minutes of the conference is spent on providing reports and generating a daily plan for all orthopedic inpatients. The final 20 minutes is dedicated to a case conference review of all inpatient and emergency department consultations to the pediatric orthopedic surgery service from the previous 24 hours (and 72 hours for the Monday conference). These consultations are added to a patient consult registry during the conference by the conference leader. At our institution, most inpatient and emergency room pediatric orthopedic consultations are for patients with a possible need for urgent treatment. Less urgent conditions such as nondisplaced fractures, clavicle fractures, and ligament injuries are referred for outpatient follow-up.

This urgent condition case conference is part of a comprehensive pediatric orthopedic curriculum at our institution. The conditions discussed in this conference complement teaching provided in other components of the curriculum including didactic lectures, journal club, and 4 additional case conferences (preoperative, postoperative, spasticity, and spine).

After obtaining Institutional Review Board approval, we retrospectively identified via the patient consult registry 1762 patients presented at our pediatric orthopedic consultation case conferences over a 3-year period. Cases and topics reviewed at other conferences and lectures in the curriculum were not included in this study. A review of the electronic medical record was utilized to confirm the diagnosis for each consultation. Fractures in more than 1 limb and fractures due to child abuse were recorded as multiple trauma and child abuse, respectively. We divided these consultations into the 3-month resident rotation blocks (January-March, April-June, July-September, and October-December) for analysis. Descriptive statistics were used to summarize the distributions of the diagnoses in each rotation with ANOVA calculations for comparisons between categories.

RESULTS

The mean number of consultations per rotation was 147 (range: 118-206). The vast majority of consultations (86.5%, 1524/1762) were for traumatic injuries (Table 1). The most common traumatic conditions were all fractures; both-bone forearm, supracondylar humerus, and distal radius. These consultations were presented with a mean 46.1 (range: 24-64), 23.8 (range: 17-31), and 13.8 (range: 7-33) times per rotation, respectively. Less common traumatic consultations included conditions such as Monteggia fracture, compartment syndrome, and patella sleeve fracture. Each of these conditions was presented at an average of less than once per rotation.

The second most frequent category of diagnoses (7.7%, 136/1762) was infectious processes (Table 2). Within this category, osteomyelitis and septic arthritis were presented with a mean of 2.0 (range: 0-5) and 1.6 (range: 0-5) times per rotation, respectively. One case of necrotizing fasciitis was presented in 3 years. The least frequent category (5.8%, 102/1762) was congenital, developmental, and other pediatric orthopedic problems such as clubfoot and hip dysplasia (Table 3). Slipped capital femoral epiphysis was the most common condition in this category, presenting on average 3.3 times (range: 1-8) per rotation.

The mean number of total consultations per seasonal rotation was greatest in the October-December rotation 179.3 (range: 152-206) compared to January-March 139 (range: 125-151); April-June, 136.3 (range: 118-156); July-September, 132.6 (range: 119-160) ($p = 0.09$). Both-bone forearm fractures were more common in the October-December rotation (mean 58.0, range: 49-64) compared to the other 3 rotations (mean 42.2, range: 24-60) ($p = 0.27$). Distal radius fractures were also more common in the October-December rotation (mean 24.0, range: 9-33) compared to the other 3 rotations (mean 10.5, range: 7-16) ($p = 0.13$).

DISCUSSION

Orthopedic surgery residency education requires a multimodal strategy to produce competent surgeons capable of