General Orthopaedics

Chairperson: REC Rose

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Tibial plateau fractures at Spanish Town Hospital

D Wright
Spanish Town Hospital, St Catherine, Jamaica, West Indies
E-mail: depwright@gmail.com

The operative management of tibial plateau fractures remains a challenge to the present time. This paper reviews a small series of these fractures including their demographics, operative approaches and results.

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Knowing is growing – the Kingston Public Hospital Orthopaedic audit

I Neil, K White
Kingston Public Hospital, Kingston, Jamaica
Eric Williams Medical Sciences Complex, St Augustine, Trinidad and Tobago
E-mail: kimani_white@yahoo.com

Objective: To define the epidemiology of orthopaedic admissions at the Kingston Public Hospital (KPH) and to identify the factors that determine their hospital course.
Methods: In March 2010, a mechanism for auditing the orthopaedic service at KPH *via* a proforma was implemented. Data reflecting hospital course, management and complications were entered into a database. Data were extracted from the first 29 months of study and entered into Stata version 11 for analysis by the authors.
Results: Two thousand four hundred and fifty-five patients completed their hospital course during the study period. The average age of patients was 39 years, with males on average being 11 years younger than females ($p < 0.0001$) and three times more common. Seventy-five per cent involved traumatic injuries while 18% involved infections. The most frequently involved region for isolated orthopaedic consultations was the hand (29%) whereas the thigh was involved in 19% of multiple injured patients. Sixty-eight per cent of patients had a procedure done and 45% of these were done in the main operating theatre. The average duration of stay in hospital was ten days and was significantly longer in patients who were transferred from other hospitals who required being taken to the main operating theatre, or who had complications ($p < 0.0001$). Complications were reported in 8% of patients and mortalities in 0.8%. Eighty-nine per cent of patients were improved by the time of discharge.
Conclusion: The young Jamaican male is the most common patient treated at the KPH service and the hand is the region most commonly affected.

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Skeletal trauma in children – a review and current concepts of upper extremity fracture management

K Jeffers
Tenet Florida Physician Services, Boca Raton, Florida, USA
E-mail: drkjeffers@yahoo.com

Children are not small adults. The unique bony anatomy leads to fracture patterns in children that are quite distinct from adult patients. This unique bony anatomy will be outlined, and a comprehensive review of the patterns and therapeutic approaches to fractures of the upper extremity in children will be presented. At the end of the presentation, the audience will be able to identify unique fracture patterns of the upper extremity in children and relate this to therapeutic modalities that take into account the unique anatomy of the growing skeleton. The target audience is resident physicians and allied health personnel involved in the care of children with fractures of the upper extremity.

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The role of orthopaedic research in clinical practice: a personal experience

E Abraham
University of Illinois Medical School at Chicago, Chicago, Illinois, USA
E-mail: eda1215@gmail.com

Objective: To show how the author's four selective basic science research projects have influenced the clinical management of patients.
Methods: Study 1: *Experimental hyper-extension supracondylar fractures in monkeys*. One hundred and five upper extremities from 53 monkeys were divided into infantile, juvenile and adult specimens. Forceful hyperextension was applied to the forearm. Dissection, mechanical studies and contact pressure studies were carried out.
Study 2: *Remodelling potential of long bones following angular osteotomies*. The osteotomies were created in the upper and lower extremities of 15 juvenile baboons which were followed-up to seven years. The remodelling changes were measured with sequential radiographs.
Study 3: *Clinical implications of anatomical wear characteristics in slipped capital femoral epiphysis and primary osteoarthritis*. One hundred human femoral head specimens were studied by plotting the arthritic changes with 2-D grids and 3-D data.
Study 4: *Pressure controlled Esmarck bandages used as tourniquet*. One to three wrappings on a cylinder and plaster of Paris leg model was applied over a load cell which recorded the pressure levels.
Results: Study 1: As the extension supracondylar fracture progressed from stable to unstable stages, the anterior distal periosteum detached anteriorly then tore completely. Forearm stage pronation and not supination was the stable position for all reduced fractures.
Study 2: The remodelling potential of long bone fractures was equally shared by adjacent growth plates and bone at the fracture site.
Study 3: Slipped capital epiphysis was associated with earlier osteoarthritis than primary degenerative osteoarthritis because of the decreasing thickness of articular cartilage as the "slip" increased in severity.
Study 4: Pressure generated underneath the Esmarck elastic wrap placed above the ankle reached 900 mm of mercury pressure after three complete circumferential wraps. Results of each of the four above studies were statistically significant ($p < 0.01$).
Conclusion: The results of four selected basic science research studies were used as examples of how they can positively influence patient care with orthopaedic conditions.