



**DEPARTMENT OF ORTHOPAEDIC
SURGERY**

**11TH ANNUAL ROBERT D. D'AMBROSIA
LECTURESHIP AND RESEARCH DAY**

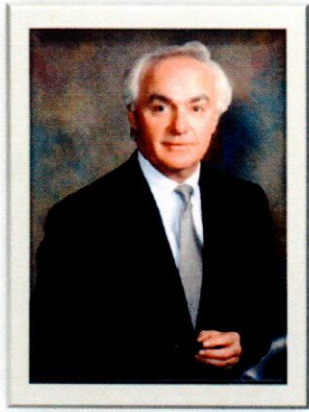
JUNE 27, 2014

Schedule of Events

- 7:30 am- 8:00 am Continental Breakfast**
- 8:00 am - 8:15 am **Vinod Dasa, MD** / Director of Orthopaedic Research
Introduction
- 8:15 am – 8:30 am **Andrew G. King, MD** / Department Chairman
Opening Remarks
- 8:30 am – 9:15 am **Gregory Brick, MD** / Guest Speaker
Assistant Professor, Harvard Medical School
Learning Curve of Anterior Hip Surgery
- 9:15 am - 9:25 am* **James Kyle, MD** / Chief Resident
Effect of CPM Duration on Pain After TKA
Fellowship: Brigham & Women's Hospital
Faculty Advisor: Vinod Dasa, MD
- 9:30 am – 9:40 am* **Dale Landry, MD** / Chief Resident
*Should ESR and CRP be Included in the Routine Preoperative
Workup for Primary Total Knee Arthroplasty?*
Fellowship: The Spine Institute of Arizona
Faculty Advisor: Vinod Dasa, MD
- 9:45 am – 9:55 am* **Ahmed Thabet, MD** / Fellow
Operative Treatment for Pediatric Elbow Fractures
Faculty Advisor: Stephen Heinrich, MD
- 10:00 am – 10:15 am BREAK
- 10:15 am – 10:25 am* **Russell Russo, MD** / Chief Resident
Gunshot Violence in Orthopedics
Fellowship: Houston Methodist
Faculty Advisor: Peter Krause, MD
- 10:30 am – 10:40 am* **Kristopher Sirmon, MD** / Chief Resident
*Petellofemoral Pain After TKA Requiring Patella Resurfacing
in a Previously Unsurfaced Patella*
Faculty Advisor: Vinod Dasa, MD
- 10:45 am – 11:15 am **Daniel Hayes, PhD** / Assistant Professor
LSU Biological and Agricultural Engineering
*Photomodulated Oligonucleotide Therapeutics for Control of
Critical Sized Defect Repair*
- 11:15 am – 11:30 am **Closing Remarks**

*Denotes there will be 5 minutes of Q & A followed by the presenter's talk.

**Refreshments provided by DePuy Synthes, Stryker, and Zimmer.



Andrew G. King, MD
Department of Orthopaedic Surgery
Department Chairman

Every residency program in the US is a little different from one another. Each has its signature, its strong points and not so strong points. The signature becomes self-perpetuating, since it attracts resident applicants who feel they fit the profile.

At LSU we are justly proud of a signature that stresses practicality, the ability to operate, and the ability to handle trauma.

So where does research fit in? Is it exclusively the domain of programs that are at the opposite pole from ours?

The program we have today clearly shows that a practical hands-on, operative intensive program such as ours can still generate interesting and meaningful research.

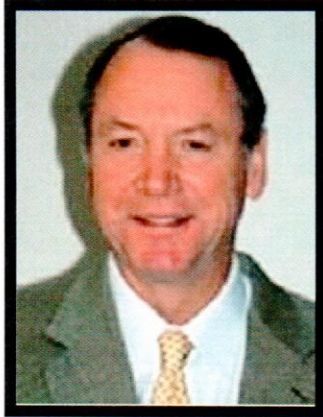
We have the resources, through the Consortium for Musculoskeletal Research, and in particular with the leadership of Mandi Lopez and Jeff Gimble, to carry out basic science research involving stem cells, and osteoinductive proteins and cytokines, and the ability to begin to go after national grants. I am pleased to announce that, as of this month, we have begun accruing patient samples and data for a \$1 million grant from the Department of Defense looking for the cellular basis for heterotopic ossification. In recognition of our ability to mount this research project, the DOD has allowed us access to two further multicenter studies.

We have benefitted from a close association with Steve Cook and his lab, and the important industry related work he is involved in through the Brown foundation.

And we have a trauma data base at University Hospital that allows clinical outcomes research, particularly on trauma cases, along with an excellent basic science research faculty here in the Health Science Center.

We have been very fortunate to have been able to welcome Elaine Boos as our departmental research coordinator. Elaine has an extensive background and knowledge of research and clinical trials, and in the short time she has been with us, has already boosted our research activity. In addition, our surgeon faculty has stepped up to the plate, and has fostered and mentored an increasing number of projects, with both the residents and medical students with an orthopedic interest.

I am confident this trend will continue and develop. Research begets more research! Our LSU Orthopedic signature will expand to that of a practical, operatively skilled residency, with a solid research base.



2014 Robert D. D'Ambrosia Guest Speaker

Gregory W. Brick, MD

Gregory W. Brick, FRACS is a senior surgeon at the Brigham and Women's Hospital in Boston, Mass. He is fellowship-trained in spine surgery and joint replacement.

Dr. Brick graduated in 1976 from the Auckland University School of Medicine in New Zealand. He completed his residency in orthopedic surgery in 1984 graduating from the New Zealand Orthopaedic Association Training Program.

He completed a year of Fellowship Training in Joint Replacement at the Brigham and Women's Hospital in 1986. He then spent a year of Fellowship Training in Spine Surgery at Vanderbilt University Medical Center.

Dr. Brick has been on staff at Brigham and Women's Hospital since October 1, 1987.

His areas of interest include the treatment of Diffuse Pigmented Villonodular Synovitis of the Knee, Revision Hip and Knee Replacement and Spine Surgery in the Rheumatoid Patient.

Dr. Brick has been featured as *Boston Magazine's* Top Doctors in Orthopaedic Surgery for many years and has been listed in Castle Connolly's "Top Doctors."

He was awarded the Auckland University Distinguished Alumni Award in 2011 and the Marian Ropes Award from the Arthritis Foundation for Care of the Arthritic Patient in Boston in 2012.

Effect of Continuous Passive Motion (CPM) on Pain After Total Knee Arthroplasty (TKA) **J. Kyle, MD, P. Fontenot, M. Delarosa, MD, Vinod Dasa MD**

Background:

Patients who fail nonoperative management for knee arthritis often undergo total knee arthroplasty (TKA) using a continuous passive motion devices (CPM) post operatively. CPM is achieved by applying a device with a pre-set range of motion that passively moves the patients leg for a variable amount time. CPM is no longer thought to improve range of motion, however its effect on reducing pain is controversial.

Methods:

Randomized prospective study of 90 patients enrolled in 3 different protocols (no cpm, 15 mid BID, 2hrs BID). Primary outcomes measures were pain (VAS) and secondary outcome measures were active range of motion, passive range of motion, gait distance, and length of hospital stay.

Results:

There is no statistically significant difference in time spent in CPM in regards to pain. Using no CPM (mean = 1.7) or CPM for 2 hours twice per day (mean = 1.5) showed no statistical difference for length of stay, however using CPM for 15 minutes twice per day showed a statistically significant increase in the length of stay (mean = 2.1). There was no statistical significance in the gait distance between the three groups, however we did observe an increased gait distance in the the group receiving CPM 2 hours twice per day. There is no statistical significance in active range of motion between the three groups. There was a statistically significant increase in the passive range of motion in those who received 15 minutes of CPM twice a day but no increase in the passive range of motion in those who received 2 hours of CPM twice a day or no CPM at all.

Conclusions:

Our data shows no evidence that different times spent in CPM alleviates pain. There was no evidence that CPM increased gait distance or active range of motion. While 15 minutes of CPM did show an increase in the passive range of motion, it was also related to a longer length of hospital stay.

Should ESR and CRP be Included in the Routine Preoperative Workup for Primary Total Knee Arthroplasty?

Dale T. Landry Jr., MD ,Vinod Dasa, MD

Introduction:

Erythrocyte Sedimentation Rate (ESR) and C-Reactive Protein (CRP) are two serum measures of inflammation that can be used to diagnose periprosthetic joint infection and to assess treatment efficacy by monitoring trends in improvement. Currently, most physicians do not obtain inflammatory markers as a baseline preoperatively to help assess potential postoperative infections. Furthermore, the diagnostic as well as prognostic efficacy of ESR and CRP can be distorted if their levels are unknowingly elevated. The purpose of this study was to define the prevalence of preoperatively elevated ESR and CRP levels within a cohort of otherwise healthy patients undergoing primary Total Knee Arthroplasty (TKA).

Methods:

The medical records of a single surgeon cohort of primary total knee arthroplasty patients from October 2009 to May 2011 were retrospectively reviewed. Patients with complete preoperative blood work including CBC, ESR, and CRP drawn within 30 days prior to index procedure were included. An initial evaluation of preoperative inflammatory markers was then made in all patients to determine the overall prevalence of elevated ESR and CRP. Patients were then excluded if they had concomitant medical conditions known to elevate inflammatory markers and then the prevalence of idiopathically elevated ESR and CRP levels were determined in this patient cohort. Finally, the two cohorts were then stratified based on Body Mass Index (BMI) and the trends in ESR and CRP were then analyzed.

Results:

94 patients were included in the original cohort. The overall preoperative prevalence of elevated ESR was 41.5% and elevated CRP was 28.7%. All patients with known inflammatory states were then excluded resulting in 78 healthy patients in the idiopathic cohort. Idiopathically, ESR was elevated in 38.5% and CRP was elevated in 26.9% of patients. After stratifying both cohorts according to BMI, they both demonstrated a direct relationship with increasing BMI correlating with increasing preoperative ESR and CRP levels.

Discussion and Conclusion:

This study identifies a significant number of otherwise healthy patients undergoing TKA with elevated inflammatory markers. Furthermore, this study identifies a direct relationship between increasing BMI and increased rates of elevated ESR and CRP. If initial baseline serum levels of ESR and CRP are not established for each individual patient prior to the index arthroplasty, then the postoperative values of these serum markers may be misinterpreted and the diagnostic as well as prognostic value of serum ESR and CRP levels can be compromised especially if the values do not “normalize.” Furthermore, this study suggests that the BMI of a patient should always be considered, and if the patient has a BMI > 25%, then strong consideration should be given to attaining preoperative ESR and CRP to determine the patient’s baseline levels.

Outcome of Screw Fixation For Pediatric Elbow Fractures

Ahmed M. Thabet MD, Stephen Hienrich MD

Background:

The distal growth plate of the humerus has limited growth potential and subsequently less remodeling capacity. Surgical treatment options include closed vs open reduction and fixation. The fixation achieved through smooth k.wires, screws, flexible nails and external fixators. Complications are not infrequent. This study hypothesized that operative intervention with screw fixation has better outcome compared to conservative treatment. The study aimed to report the clinical and radiographic outcomes of screw fixation for elbow fractures in children.

Methods:

This is retrospective study between 2007 and 2013. The study was approved by Institutional Review Board (IRB). The study included all patients with elbow fractures (lateral condyle, LC and supracondylar, SCH) who treated with screw fixation. Patients treated with only smooth wires were excluded from the study. Medical records and radiographs were reviewed. Flynn's criteria are used as outcome score.

Results:

A total of 28 patients included (LC: 11 and SCH: 17). The mean age at surgery in SCH group was 8.6 while LC group was 4.8 years. The study included 9 girls and 8 boys in SCH group and 8 boys and 3 girls in LC group. The left elbow was the most involved side (SCH: 11 left, 6 right) LC (8 left and 3 right). The extension type was the most frequent fracture type (15 extension and 2 flexion) SCH. The SCH group included type III: 13 and type II: 4. The LC group included type I: 1, type II: 8 and type III: 2 according to Jacob and type II: 10 and type I: 1 according to Milch. CRIF treatment mode applied in 13 SCH and 7 in LC group. While ORIF applied in 4 in SCH group and 4 in LC group. The post-operative complications were loss of reduction in SCH (1/17) and delayed union (1/11) in LC. Union was achieved in all cases except one.

Conclusion:

Screw fixation for pediatric elbow fractures is valid option to achieve healing and early motion.

The Economic and Educational Impact of Gunshot Violence on an Urban Academic Medical Center

R. Russo, MD, M. Fury, S. Accardo, MD, P. Krause, MD

Background:

Gunshot violence has been heavily publicized in recent years across the United States. However, there has been few scientific studies examining the effects of gunshot violence on urban medical centers. The financial cost is suspected to be increasing although no studies have documented an exact number. The financial cost is accompanied by the cost on medical education at these centers. No study as of yet has been able to reliably document the financial cost that gun-related violence has on our medical system as well as the impact on orthopedic resident training.

Materials and Methods:

Utilizing the Spirit of Charity Trauma Registry, we analyzed data from 2007-2013 at a Level 1 urban trauma center in New Orleans, Louisiana on all acute gunshot victims including sex, age, race, positive toxicology screens, health insurance status, and final disposition. The study also uses the census and surgical case logs of an urban trauma center orthopedic program. In coordination with the central business office, we calculated the final hospital charges and collections of the patients with an acute diagnosis of gunshot wound over our study period.

Results:

Results show the average age of victims to be 26. The sex was 89% male, and the race distribution was 83% African-American, 11% Caucasian, and 6% other. 65% of patients were uninsured, 28% had Medicaid, 1% had Medicare, and 6% had private insurance. 86% were able to be discharged to home. The impact on resident education showed the census of orthopedic trauma patients related to gunshot violence was 23%. Orthopedic inpatient surgery was required for 15% of all acute gunshot victim encounters seen in the emergency room. Hospital charges to these patients were \$141,995,682 while the hospital collected \$30,922,953 for a net loss of almost \$111,000,000 over 7 years.

Conclusion:

In conclusion, this study demonstrates how a preventable problem such as gunshot violence can pose a significant financial burden on urban medical centers as well as affect orthopedic training. With increasing healthcare costs and decreasing resident work hours, solutions to the preventable problem of gunshot violence must be addressed.

Patient Reported Outcomes In Resurfaced Patella vs Nonresurfaced Patella Total Knee Arthroplasties

KC Sirmon, MD, J Percle, MS, C Melancon, MS, H Thompson, PhD, V Dasa, MD

Background:

With so much controversy concerning resurfacing of the patella when performing total knee arthroplasty (TKA) our institution decided to collect data on patient outcomes following TKA by a single surgeon comparing those resurfaced and those not resurfaced. Our objective was to determine patient reported satisfaction based on several outcomes scores. Our secondary outcomes were comparing BMI among the groups and comparing outcomes by insurance type: Medicaid, Medicare, or private.

Methods:

Eighty-one patients with 101 TKA's elected to participate in the study and were included in the study evaluating our retrospective data out of ninety-six patients called. Patients were called by telephon and questioned on their outcomes according to the (Knee and Osteoarthritis Outcome Score (KOOS), the Oxford knee score, and the Anterior Knee Pain Rating (AKPR))

Results:

No significant difference was found between the two groups in terms of KOOS, Oxford, and Anterior Knee Pain Rating (AKPR). The revision rate was seven knees in the nonresurfaced group and 3 in the resurfaced group for such things as arthrofibrosis, infection, dehiscence, and anterior knee pain. Of the nonresurfaced group, four were resurfaced on a later date. Concerning our secondary outcomes, we found that a significant amount of patients with a higher BMI had worse outcomes scores (KOOS QOL, $p=0.0469$; KOOS Sport, $p=0.0177$; KOOS symptoms, $p=0.0198$, $p=0.0148$; Oxford, $p=0.0205$; AKPR, $p=0.0281$, $p=0.0213$). We also found a significant difference when comparing outcomes by insurance type (private vs. Medicaid; KOOS ADL, $p=0.0479$; KOOS pain, $p=0.0160$; Oxford, $p=0.0382$).

Conclusions:

Patients with elevated BMI had worse outcomes scores than those with a lower BMI. It was also concluded that those patients with private insurance compared to Medicaid insurance achieved better outcomes in 3 categories of outcomes scores.



Guest Speaker

Daniel Hayes, PhD

LSU Biological and Agricultural Engineering

Dr. Hayes, a graduate of the Penn State Engineering Science and Mechanics program, is currently an assistant professor in Biological Engineering at Louisiana State University. Prior to joining the faculty at LSU Dan was the co-founder of NanoHorizons Inc. a successful Penn State University spin-out, which has licensed a broad suite of intellectual property related to micro and nanofabrication from Penn State University. NanoHorizons, is a leading supplier nanoscale bioactive materials for the medical device and military community. Leveraging this experience as a tech entrepreneur he founded the LSU Engineering Entrepreneurship program, a twelve-credit program for undergraduate and graduate students teaching lab to market, technology and business development skills. His research interests include nanoscale drug/diagnostic delivery and development of materials and processes for regenerative medicine. Dan has authored numerous peer-reviewed publications and is an inventor on ~15 pending and allowed patents. Additionally, he is a recent recipient of the NSF CAREER award for his work in nanoplasmonic mediated gene delivery systems.

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Brian Perry, MD
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John Whatley, MD

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Bryce Fugarino, MD
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