

Henry Ford Health System Publication List September 2008

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You can access this page at <http://www.henryfordconnect.com/sladen.cfm?id=436>.

Anesthesiology

Frogel J, Vodur S and Horak J. (2008). "Transesophageal echocardiography diagnosis of extracardiac left ventricular assist device inflow cannula obstruction in a patient with thoratec intracorporeal ventricular assist device biventricular support." J Am Soc Echocardiogr 21(6): 777 e5-6. [PDF Full-Text](#)

Henry Ford Hospital, Department of Anesthesiology, Detroit, Michigan 48202, USA. jfrogel1@hfhs.org.

Ventricular assist device support for heart failure has gained popularity as both a bridge to heart transplantation and as destination therapy. Early device malfunction is unusual and can be caused by several distinct mechanisms. We present the first reported case of echocardiographic diagnosis of extracardiac cannula obstruction leading to biventricular assist device failure.

Biostatistics and Research Epidemiology

Hensley Alford SM, Lappin RE, Peterson L and Johnson CC. (2008). "Pregnancy Associated Smoking Behavior and Six Year Postpartum Recall." Matern Child Health J. Epub Ahead of Print. [PDF Full-Text](#)

Department of Biostatistics and Research Epidemiology, Henry Ford Health System, One Ford Place, Suite 5C-BRE, Detroit, MI, 48202, USA, salford1@hfhs.org.

Background This study examined predictors and behaviors of pregnancy-related smoking among women who belonged to a private health maintenance organization and the recall accuracy of pregnancy-related smoking behaviors after 6-years. **Methods** A cohort of 725 pregnant women was followed for six years. Major predictors for smoking behavior before, during, and one-year following pregnancy were determined. In addition, accuracy of recall six years postpartum of smoking behavior at the time of pregnancy and one-year postpartum was tested. **Results** Mother's education, asthma status, amount of pre-pregnancy smoking, gravidity, and father's smoking status were important in the prediction of pregnancy associated smoking. Agreement for recall of smoking behavior during pregnancy (6 year recall) and one-year postpartum (5 year recall) were 90% and 91%, respectively. **Conclusions** Despite potentially adverse outcomes, a proportion of women continue to smoke throughout pregnancy. A number of variables proved to be important predictors of pregnancy associated smoking behavior. These factors should be considered by smoking cessation programs targeting women of reproductive age. Additionally, there was substantial agreement for maternal recall at six years postpartum of smoking behavior at the time of pregnancy and one-year postpartum. This should be

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considered in retrospective study designs that are primarily based on maternal recall of smoking behaviors before, during, and following pregnancy.

Biostatistics and Research Epidemiology

Nicholas C, Wegienka G, Havstad S, Ownby D and Johnson CC. (2008). "Influence of cat characteristics on Fel d 1 levels in the home." Ann Allergy Asthma Immunol **101**(1): 47-50. [PDF Full-Text](#)

Department of Biostatistics and Research Epidemiology, Henry Ford Health System, Detroit, Michigan, USA. cnichol4@hfhs.org.

BACKGROUND: Previous studies investigating cat characteristics and cat allergen production focused on clinical experiments that quantified allergen from either the shaved skin or the fur of the animal; however, these studies did not address these experimental relationships in the home. **OBJECTIVE:** To determine the relationships between cat characteristics and cat allergen isolated from household dust. **METHODS:** Fel d 1 allergen levels in dust from homes participating in a population-based study of environmental effect on allergy development were analyzed using a standard monoclonal antibody-based assay. Cat characteristics were based on interviews conducted during home visits by study personnel. **RESULTS:** Households with any cats had higher geometric mean Fel d 1 levels than households without cats (32.88 vs 0.43; $P < .01$), and cat allergen levels increased with increasing numbers of cats in the home ($P < .01$). Length of cat hair, cat sex, reproductive status, and time spent indoors were analyzed; the only characteristic associated with higher levels of Fel d 1 was whether the cat had been neutered or spayed. **CONCLUSIONS:** Having cats in the home is significantly associated with increased Fel d 1 levels, and having more cats in the home is correlated with more cat allergen. Cat reproductive characteristics may be associated with measurable differences in cat allergen levels.

Bone & Joint Center

Bey MJ, Kline SK, Tashman S and Zauel R. (2008). "Accuracy of biplane x-ray imaging combined with model-based tracking for measuring in-vivo patellofemoral joint motion." J Orthop Surg **3**(1): 38. [PDF Full-Text](#)

Henry Ford Health Systems, Department of Orthopaedics, Bone and Joint Center; E&R 2015, 2799 W, Grand Blvd, Detroit, MI 48202, USA. bey@bjc.hfh.edu.

ABSTRACT: BACKGROUND: Accurately measuring in-vivo motion of the knee's patellofemoral (PF) joint is challenging. Conventional measurement techniques have largely been unable to accurately measure three-dimensional, in-vivo motion of the patella during dynamic activities. The purpose of this study was to assess the accuracy of a new model-based technique for measuring PF joint motion. **METHODS:** To assess the accuracy of this technique, we implanted tantalum beads into the femur and patella of three cadaveric knee specimens and then recorded dynamic biplane radiographic images while manually flexing and extending the specimen. The position of the femur and patella were measured from the biplane images using both the model-based tracking system and a validated dynamic radiostereometric analysis (RSA) technique. Model-based tracking was compared to dynamic RSA by computing measures of bias, precision, and overall dynamic accuracy of four clinically-relevant kinematic parameters (patellar shift, flexion, tilt, and rotation). **RESULTS:** The model-based tracking technique results were in excellent agreement with the RSA technique. Overall dynamic accuracy indicated errors of less than 0.395 mm for patellar shift, 0.875 degrees for flexion, 0.863 degrees for tilt, and 0.877 degrees for rotation. **CONCLUSION:** This model-based tracking technique is a non-invasive method for accurately measuring dynamic PF joint motion under in-vivo conditions. The technique is sufficiently accurate in measuring clinically relevant changes in PF joint motion following conservative or surgical treatment.

Dermatology

Hexsel CL, Bangert SD, Hebert AA and Lim HW. (2008). "Current sunscreen issues: 2007 Food and Drug Administration sunscreen labelling recommendations and combination sunscreen/insect repellent products." J Am Acad Dermatol **59**(2): 316-23. [PDF Full-Text](#)

Department of Dermatology, Henry Ford Hospital, Detroit, Michigan, USA.

The Food and Drug Administration (FDA) regulates sunscreens as over-the-counter drugs. This article describes sunscreen actives available in the United States, new developments available elsewhere, and the amendment to the FDA 1999 sunscreen monograph, released on August 27, 2007, which proposes a new grading system for ultraviolet B protection, a cap of the sunburn protection factor to 50+, and a 4-star grading of ultraviolet A protection. In addition, current data on combination sunscreen and insect repellent products are discussed. Application of a combination product too frequently poses the risk of insect repellent toxicity, whereas application too infrequently invites photodamage. It may be prudent to follow the same approach of our Canadian colleagues of discontinuing combination products until more investigations are available.

Diagnostic Radiology

Arbab AS, Janic B, Knight RA, Anderson SA, Pawelczyk E, Rad AM, Read EJ, Pandit SD and Frank JA. (2008). "Detection of migration of locally implanted AC133+ stem cells by cellular magnetic resonance imaging with histological findings." *Faseb J* **22**(9): 3234-46.

[PDF Full-Text](#)

Department of Radiology, Henry Ford Health System, 1 Ford Pl., 2F, Box 82, Detroit, MI 48202, USA. saali@rad.hfh.edu.

This study investigated the factors responsible for migration and homing of magnetically labeled AC133(+) cells at the sites of active angiogenesis in tumor. AC133(+) cells labeled with ferumoxide-protamine sulfate were mixed with either rat glioma or human melanoma cells and implanted in flank of nude mice. An MRI of the tumors including surrounding tissues was performed. Tumor sections were stained for Prussian blue (PB), platelet-derived growth factor (PDGF), hypoxia-inducible factor-1alpha (HIF-1alpha), stromal cell derived factor-1 (SDF-1), matrix metalloproteinase-2 (MMP-2), vascular endothelial growth factor (VEGF), and endothelial markers. Fresh snap-frozen strips from the central and peripheral parts of the tumor were collected for Western blotting. MRIs demonstrated hypointense regions at the periphery of the tumors where the PB(+)/AC133(+) cells were positive for endothelial cells markers. At the sites of PB(+)/AC133(+) cells, both HIF-1alpha and SDF-1 were strongly positive and PDGF and MMP-2 showed generalized expression in the tumor and surrounding tissues. There was no significant association of PB(+)/AC133(+) cell localization and VEGF expression in tumor cells. Western blot demonstrated strong expression of the SDF-1, MMP-2, and PDGF at the peripheral parts of the tumors. HIF-1alpha was expressed at both the periphery and central parts of the tumor. This work demonstrates that magnetically labeled cells can be used as probes for MRI and histological identification of administered cells.

Emergency Medicine

Rivers EP and Ahrens T. (2008). "Improving outcomes for severe sepsis and septic shock: Tools for early identification of at-risk patients and treatment protocol implementation."

Critical Care Clinics **24**(3): S1-S47. [Article Request Form](#)

Henry Ford Hospital, Department of Emergency Medicine, Detroit, MI.

Emergency Medicine

Sasson C, Hegg AJ, Macy M, Park A, Kellermann A and McNally B. (2008). "Prehospital termination of resuscitation in cases of refractory out-of-hospital cardiac arrest." *Jama*

300(12): 1432-8. [PDF Full-Text](#)

Department of Emergency Medicine, University of Michigan, Ann Arbor, USA.

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CONTEXT: Identifying patients in the out-of-hospital setting who have no realistic hope of surviving an out-of-hospital cardiac arrest could enhance utilization of scarce health care resources. OBJECTIVE: To validate 2 out-of-hospital termination-of-resuscitation rules developed by the Ontario Prehospital Life Support (OPALS) study group, one for use by responders providing basic life support (BLS) and the other for those providing advanced life support (ALS). DESIGN, SETTING, AND PATIENTS:

Retrospective cohort study using surveillance data prospectively submitted by emergency medical systems and hospitals in 8 US cities to the Cardiac Arrest Registry to Enhance Survival (CARES) between October 1, 2005, and April 30, 2008. Case patients were 7235 adults with out-of-hospital cardiac arrest; of these, 5505 met inclusion criteria. MAIN OUTCOME MEASURES: Specificity and positive predictive value of each termination-of-resuscitation rule for identifying patients who likely will not survive to hospital discharge. RESULTS: The overall rate of survival to hospital discharge was 7.1% (n = 392). Of 2592 patients (47.1%) who met BLS criteria for termination of resuscitation efforts, only 5 (0.2%) patients survived to hospital discharge. Of 1192 patients (21.7%) who met ALS criteria, none survived to hospital discharge. The BLS rule had a specificity of 0.987 (95% confidence interval [CI], 0.970-0.996) and a positive predictive value of 0.998 (95% CI, 0.996-0.999) for predicting lack of survival. The ALS rule had a specificity of 1.000 (95% CI, 0.991-1.000) and positive predictive value of 1.000 (95% CI, 0.997-1.000) for predicting lack of survival. CONCLUSION: In this validation study, the BLS and ALS termination-of-resuscitation rules performed well in identifying patients with out-of-hospital cardiac arrest who have little or no chance of survival.

Hematology, Medical Oncology and Josephine Ford Cancer Center

Johnson CC, Kessel B, Riley TL, Ragard LR, Williams CR, Xu JL and Buys SS. (2008). "The epidemiology of CA-125 in women without evidence of ovarian cancer in the Prostate, Lung, Colorectal and Ovarian Cancer (PLCO) Screening Trial." Gynecol Oncol **110**(3): 383-9.

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Josephine Ford Cancer Center, Henry Ford Hospital, Detroit, MI, USA. cjohnso1@hfhs.org.

OBJECTIVE: To determine the epidemiology of CA-125 in women without ovarian cancer. METHODS: We analyzed demographic, medical and lifestyle characteristics related to CA-125, measured using the Centocor CA-125II RIA assay, among 25,608 multi-ethnic U.S. women aged 55-74 years enrolled in a cancer screening trial and found to have no evidence of ovarian cancer. RESULTS: Mean CA-125 level was 11.9 U/ml (SD 8.3); median 10.0 U/ml, interquartile range 8.0-14.0. High levels, using the clinical cut point of ≥ 35 U/ml, were associated with increased age ($p < 0.001$) and former smoking ($p < 0.021$), while hysterectomy and obesity were protective ($p < 0.001$). Mean levels were higher with increasing age ($p < 0.001$), ever use of hormone therapy ($p < 0.001$), former smoking ($p < 0.017$) and history of breast cancer ($p < 0.002$), but lower ($p < 0.001$) with non-White status, previous hysterectomy, current smoking, and obesity. Current hormone therapy use was not associated with CA-125 in women without a uterus. CONCLUSION: In post-menopausal women without ovarian cancer, CA-125 level is influenced by a number of factors, including race/ethnicity, age, hysterectomy, smoking history and obesity.

Hematology, Medical Oncology and Josephine Ford Cancer Center

Lambing A, Kuriakose P, Lanzon J and Kachalsky E. (2008). "Dialysis in the haemophilia patient: a practical approach to care." Haemophilia. Epub Ahead of Print. [PDF Full-Text](#)

Hemophilia & Thrombosis Treatment Center, Henry Ford Health System, Detroit, MI, USA.

The major focus of care for patients with haemophilia is to ensure health with minimal joint dysfunction. As this population ages, additional coexisting conditions can develop including rare instances of nephrotic syndrome in haemophilia B inhibitor patients undergoing immune tolerance, hypertension, diabetes, and coronary artery disease, all of which can adversely affect the renal system over time. In haemophilia patients, co-infected with HIV and hepatitis C, these conditions can also increase the risk of renal problems resulting in the need for dialysis. This article provides a practical approach for the haemophilia patient who requires dialysis and outlines the decision making process to ensure a positive outcome. The goal of care is to optimize dialysis treatment without increasing the bleeding risk.

Hematology, Medical Oncology and Josephine Ford Cancer Center

Pradhan DG, Hammoud R, LaMoria K, Barlage C, Antoine LS, Aquilina L, McNutt R, Elshaikh M, Ajlouni M and Movsas B. (2008). "Online evaluation of daily pre-treatment cone beam CT scans (CBCT) during IMRT for prostate cancer (PC): Dietary advice and correction of Rectal Filling (RF) when necessary may decrease \geq grade 2 rectal toxicity."

Henry Ford Hospital, Josephine Ford Cancer Center, Detroit, MI.

Hematology, Medical Oncology and Josephine Ford Cancer Center

Sharma NK, Ruth K, Konski AA, Buyyounouski MK, Nicolaou N, Lally BE, Yu JQ, Langer CJ, Movsas B and Feigenberg SJ. (2008). "Low morbidity and excellent local control using image guided stereotactic body radiotherapy (IGSBRT) for lung tumors." International Journal of Radiation Oncology Biology Physics **72**(1): S454-S54. [PDF Full-Text](#)

Henry Ford Cancer Center, Detroit, MI.

Hypertension and Vascular Research

Liu R, Carretero OA, Ren Y, Wang H and Garvin JL. (2008). "Intracellular pH regulates superoxide production by the macula densa." American Journal of Physiology-Renal Physiology **295**(3): F851-F56. [PDF Full-Text](#)

Henry Ford Hospital, Hypertension & Vascular Research Division, Detroit, MI.

We hypothesized that elevated macula densa intracellular pH (pH(i)) during tubuloglomerular feedback enhances O₂-production from NAD(P) H oxidase. Micro-dissected thick ascending limbs from rabbits with intact macula densa were cannulated and perfused with physiological saline. When luminal NaCl was switched from 10 to 80 mM, O₂-production increased from 0.53 +/- 0.09 to 2.62 +/- 0.54 U/min (P < 0.01). To determine whether inhibiting the Na/H exchanger blocks O₂-production, we used dimethyl amiloride (DMA) to block Na/H exchange. In the presence of DMA, O₂-production induced by NaCl was blunted by 40%. To study the effect of pH(i) on O₂-in intact macula densa cells, we measured O₂-while pH(i) was changed by adjusting luminal pH. When the macula densa was perfused with 80 mM NaCl and the pH of the perfusate was switched to 6.8, 7.4, and 8.0, O₂-production was significantly enhanced, but not at 10 mM NaCl. To ascertain the source of O₂(-), we used the NAD(P) H oxidase inhibitor apocynin. In the presence of apocynin (10⁻⁵ M), O₂-production induced by elevating pH(i) was blocked. Finally, we measured the optimum pH for O₂-production by the macula densa and found optimum extracellular pH is at 7.7 and optimum pH(i) is similar to 8 for O₂-production. We found that elevated pH(i) enhances O₂-production from NAD(P) H oxidase induced by increasing luminal NaCl when the lumen is perfused with 80 mM NaCl, not 10 mM, and O₂-production is pH sensitive, with an optimum pH(i) of 8.

Hypertension and Vascular Research

Zhan E, Keimig T, Xu J, Peterson E, Ding J, Wang F and Yang XP. (2008). "Dose-dependent cardiac effect of oestrogen replacement in mice post-myocardial infarction." Exp Physiol **93**(8): 982-93. [PDF Full-Text](#)

Hypertension and Vascular Research Division, Department of Medicine, Henry Ford Hospital & Wayne State University, 2799 West Grand Boulevard, Detroit, MI 48202, USA.

Hormonal replacement therapy (HRT) has recently been shown to increase the risk of cardiovascular events in women. However, it is not clear whether the adverse effect of HRT is related to dosage and/or the presence of progestin. Using a mouse model of myocardial infarction (MI), we studied the dose-effect of oestrogen replacement on mortality and cardiac remodelling and dysfunction post-MI in the absence of progestin. Six-week-old females were subjected to ovariectomy (OVX). A pellet containing a low, moderate or high dose of 17beta-oestradiol (E(2); 0.42, 4.2 or 18.8 microg day⁻¹) or placebo was implanted subcutaneously on the day of OVX. Myocardial infarction was induced 8 weeks later, and cardiac morphology and function were evaluated 8 weeks after MI. We found that E(2) at moderate and high doses adversely affected mortality. A low dose of E(2) that restored plasma oestrogen close to physiological levels had no significant effect on mortality but tended to improve cardiac function and remodelling, associated with reduced fibrosis and increased capillary density. At the moderate dose, E(2) exacerbated cardiac fibrosis, hypertrophy, dysfunction and dilatation,

associated with liver and kidney enlargement and ascites. Protein kinase C and extracellular signal-regulated kinase were increased by MI but were not affected by E(2). In summary, E(2) at a low dose tended to be cardioprotective. At increased doses that raised plasma oestrogen far beyond the physiological level, E(2) was detrimental to the heart. Our data suggest that dosage should be an important consideration when studying the effect of oestrogen replacement on the heart.

Internal Medicine

Katakam R, Brukamp K and Townsend RR. (2008). "What is the proper workup of a patient with hypertension?" Cleve Clin J Med **75**(9): 663-72. [PDF Full-Text](#)

Instructor in Medicine, Henry Ford Health System, Detroit, MI, USA.

Because hypertension is common and many tests are available, an uncritical approach to laboratory and radiologic evaluation leads to unnecessary expenses. However, in most patients, accurate blood pressure measurement, a focused history and physical examination, and a handful of basic tests are enough. In this review we address the key questions in the evaluation of the patient with an elevated pressure reading, ie, does the patient have sustained high blood pressure? And if so, is the hypertension primary or secondary, are other cardiovascular risk factors present, and is there evidence of target organ damage?

Internal Medicine

Maltsev VA, Kyle JW, Mishra S and Undrovinas A. (2008). "Molecular identity of the late sodium current in adult dog cardiomyocytes identified by Nav1.5 antisense inhibition." Am J Physiol Heart Circ Physiol **295**(2): H667-76. [PDF Full-Text](#)

Department of Internal Medicine, Henry Ford Hospital, Cardiovascular Research, Education & Research Bldg. Rm. 4015, 2799 West Grand Blvd., Detroit, MI 48202-2689, USA.

Late Na(+) current (I(NaL)) is a major component of the action potential plateau in human and canine myocardium. Since I(NaL) is increased in heart failure and ischemia, it represents a novel potential target for cardioprotection. However, the molecular identity of I(NaL) remains unclear. We tested the hypothesis that the cardiac Na(+) channel isoform (Na(v)1.5) is a major contributor to I(NaL) in adult dog ventricular cardiomyocytes (VCs). Cultured VCs were exposed to an antisense morpholino-based oligonucleotide (Na(v)1.5 asOligo) targeting the region around the start codon of Na(v)1.5 mRNA or a control nonsense oligonucleotide (nsOligo). Densities of both transient Na(+) current (I(NaT)) and I(NaL) (both in pA/pF) were monitored by whole cell patch clamp. In HEK293 cells expressing Na(v)1.5 or Na(v)1.2, Na(v)1.5 asOligo specifically silenced functional expression of Na(v)1.5 (up to 60% of the initial I(NaT)) but not Na(v)1.2. In both nsOligo-treated controls and untreated VCs, I(NaT) and I(NaL) remained unchanged for up to 5 days. However, both I(NaT) and I(NaL) decreased exponentially with similar time courses ($\tau = 46$ and 56 h, respectively) after VCs were treated with Na(v)1.5 asOligo without changes in 1) decay kinetics, 2) steady-state activation and inactivation, and 3) the ratio of I(NaL) to I(NaT). Four days after exposure to Na(v)1.5 asOligo, I(NaT) and I(NaL) amounted to $68 \pm 6\%$ (mean \pm SE; $n = 20$, $P < 0.01$) and $60 \pm 7\%$ ($n = 11$, $P < 0.018$) of those in VCs treated by nsOligo, respectively. We conclude that in adult dog heart Na(v)1.5 sodium channels have a "functional half-life" of approximately 35 h (0.69τ) and make a major contribution to I(NaL).

Internal Medicine

Seibold MA, Wang B, Eng C, Kumar G, Beckman KB, Sen S, Choudhry S, Meade K, Lenoir M, Watson HG, Thyne S, Williams LK, Kumar R, Weiss KB, Grammer LC, Avila PC, Schleimer RP, Burchard EG and Brenner R. (2008). "An African-specific functional polymorphism in KCNM1 shows sex-specific association with asthma severity." Human Molecular Genetics **17**(17): 2681-90. [PDF Full-Text](#)

Henry Ford Hospital, Internal Medicine, Detroit, MI

A highly heritable and reproducible measure of asthma severity is baseline pulmonary function. Pulmonary function is largely determined by airway smooth muscle (ASM) tone and contractility. The large conductance, voltage and calcium-activated potassium (BK) channel negatively regulates

smooth muscle tone and contraction in ASM. The modulatory subunit of BK channels, the beta 1-subunit, is critical for proper activation of BK channels in smooth muscle and has shown sex hormone specific regulation. We hypothesized that KCNMB1 genetic variants in African Americans may underlie differences in bronchial smooth muscle tone and thus pulmonary function, possibly in a sex-specific manner. Through resequencing of the KCNMB1 gene we identified several common variants including a novel African-specific coding polymorphism (C818T, R140W). The C818T SNP and four other KCNMB1 variants were genotyped in two independent groups of African American asthmatics (n = 509) and tested for association with the pulmonary function measure - forced expiratory volume (FEV1) % of predicted value. The 818T allele is associated with a clinically significant decline (213%) in FEV1 in both cohorts of asthmatics among males but not females (P-combined = 0.0003). Patch clamp electrophysiology studies of the BK channel expressed with the 140Trp variant of the beta 1-subunit demonstrated significantly reduced channel openings, predicted by the loss of pulmonary function observed. African American male asthmatics carrying the 818T allele (10% of population) are potentially at risk for greater airway obstruction and increased asthma morbidity. Female asthmatics may be insulated from the deleterious effects of the 818T allele by estrogen-mediated upregulation in BK channel activity.

Internal Medicine

Simpkins J, Divine G, Wang MQ, Holmboe E, Pladevall M and Williams LK. (2008). "The impact of the ABIM's practice improvement modules on patient outcomes - In reply." Archives of Internal Medicine **168**(16): 1827-27. [PDF Full-Text](#)

Henry Ford Health System, Center for Health Services Research, Detroit, MI.

Medical Genetics

Chedrawi AK, Ali A, Al Hassnan ZN, Faiyaz-UI-Haque M and Wolf B. (2008). "Profound biotinidase deficiency in a child with predominantly spinal cord disease." Journal of Child Neurology **23**(9): 1043-48. [Article Request Form](#)

Henry Ford Health System, Detroit, MI.

Biotinidase deficiency is all autosomal recessively inherited disorder that manifests during childhood with various cutaneous and neurological symptoms particularly seizures, hypotonia, and developmental delay. Spinal cord disease hits been reported rarely. We describe a 3-year-old boy with profound biotinidase deficiency who presented with progressive spastic paraparesis and ascending weakness in the absence of the Usual characteristic neurological Manifestations. Supplementation with biotin resulted in resolution of paraparesis with persistent mild spasticity in the lower limbs. DNA mutation analysis revealed that lie was homozygous for a novel missense Mutation (C>T1339;H447Y) in the BTG gene. This case indicates that biotinidase deficiency should be included in the differential diagnosis Of subacute myelopathy and emphasizes the importance of a prompt diagnosis to prevent irreversible neurological damage.

Medical Genetics

Pindolia K and Wolf B. (2008). "Enzyme replacement therapy for lysosomal storage disorders - Reply." Human Gene Therapy **19**(8): 858-58. [Article Request Form](#)

Henry Ford Hospital, Department of Medical Genetics, Detroit, MI.

Medical Genetics

Pindolia K and Wolf B. (2008). "Response." Hum Gene Ther **19**(8): 858. [Article Request Form](#)

Department of Medical Genetics Henry Ford Hospital, Center for Molecular Medicine and Genetics, Wayne State University School of Medicine, Detroit, Michigan.

Nephrology

Falk RJ, Rosenberg ME, Yee J, Murray PT and Ibrahim T. (2008). "Helping nephrologists become lifelong learners." Clinical Journal of the American Society of Nephrology 3(5): 1238-41. [Article Request Form](#)

Henry Ford Health System, Division of Nephrology, Detroit, MI.

Neurology

Bosomtwi A, Jiang Q, Ding GL, Zhang L, Zhang ZG, Lu M, Ewing JR and Chopp M. (2008). "Quantitative evaluation of microvascular density after stroke in rats using MRI." J Cereb Blood Flow Metab. Epub Ahead of Print. [PDF Full-Text](#)

Department of Neurology, Henry Ford Hospital, Detroit, Michigan, USA; Department of Physics, Oakland University, Rochester, Michigan, USA.

We investigated vascular changes after stroke using magnetic resonance imaging (MRI) microvascular density (MVD) measurement. T(2) and T(2)(*) were measured in eight rats before and after injecting an intravascular superparamagnetic iron oxide contrast agent to derive the corresponding transverse relaxation shift. Reliability of MRI for measurement of MVD was compared with corresponding sections immunostained with von Willebrand factor (vWF) 2 weeks after stroke. The intracorrelation coefficient (ICC) and its 95% lower bound (LB) was high in the ischemic recovery region (ICC=0.753), moderate in the contralateral area of normal brain tissue (ICC=0.70), and low in the ischemic core (ICC=0.24). A very good agreement (ICC=0.85) and correlation (r=0.90) were observed using only the recovery region and normal contralateral hemisphere (ICC=0.85; 95% LB=0.78; P<0.05). The mean MRI MVD in the center of the core lesion (26+/-9 per mm(2)) was lower than in the recovery region (209+/-60 per mm(2)) or contralateral normal hemisphere (313+/-32 per mm(2)). However, large errors in MRI MVD were encountered in the ischemic core. Our data demonstrate that MRI MVD measurements can quantitatively evaluate microvascular changes in the brain tissue after stroke, if the MVD is not extremely low as in the ischemic core. Journal of Cerebral Blood Flow & Metabolism advance online publication, 3 September 2008; doi:10.1038/jcbfm.2008.85.

Neurology

Katramados AM, Rabah R, Adams MD, Huq AH and Mitsias PD. (2008). "Longitudinal myelitis, aseptic meningitis, and conus medullaris infarction as presenting manifestations of pediatric systemic lupus erythematosus." Lupus 17(4): 332-6. [PDF Full-Text](#)

Department of Neurology, Henry Ford Hospital, Detroit, Michigan 48202, USA.
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A healthy boy developed subacutely progressive quadriparesis, complicated by sudden paraplegia, fever, and meningeal signs, diagnosed as longitudinal myelitis, aseptic meningitis, and conus medullaris infarction and identified as the presenting manifestations of neuropsychiatric systemic lupus erythematosus. Rapid expansion of the conus on serial neuroimaging led to emergent decompressive laminectomy and cord biopsy showing vasculitis and cord infarction. The patient had partial recovery after treatment with high-dose steroids. Increased vigilance is required when pediatric patients develop a similar subacute presentation on the ground of active systemic lupus erythematosus because it may herald the onset of a catastrophic neurological syndrome.

Neurology

Knight RA, Han Y, Nagaraja TN, Whitton P, Ding J, Chopp M and Seyfried DM. (2008). "Temporal MRI assessment of intracerebral hemorrhage in rats." Stroke 39(9): 2596-602. [PDF Full-Text](#)

Henry Ford Hospital, Department of Neurology-NMR Research, 2799 West Grand Blvd, Detroit, MI 48202, USA. knight@neurnis.neuro.hfh.edu.

BACKGROUND AND PURPOSE: MRI was used to evaluate the effects of experimental intracerebral hemorrhage (ICH) on brain tissue injury and recovery. **METHODS:** Primary ICH was induced in rats (n=6) by direct infusion of autologous blood into the striatum. The evolution of ICH damage was assessed by MRI estimates of T(2) and T(1sat) relaxation times, cerebral blood flow, vascular permeability, and susceptibility-weighted imaging before surgery (baseline) and at 2 hours and 1, 7, and 14 days post-ICH. Behavioral testing was done before and at 1, 7, and 14 days post-ICH. Animals were euthanized for histology at 14 days. **RESULTS:** The MRI appearance of the hemorrhage and surrounding regions changed in a consistent manner over time. Two primary regions of interest were identified based on T(2) values. These included a core, corresponding to the bulk of the hemorrhage, and an adjacent rim; both varied with time. The core was associated with significantly lower cerebral blood flow values at all post-ICH time points, whereas cerebral blood flow varied in the rim. Increases in vascular permeability were noted at 1, 7, and 14 days. Changes in T(1sat) were similar to those of T(2). MRI and histological estimates of tissue loss were well correlated and showed approximately 9% hemispheric tissue loss. **CONCLUSIONS:** Although the cerebral blood flow changes observed with this ICH model may not exactly mimic the clinical situation, our results suggest that the evolution of ICH injury can be accurately characterized with MRI. These methods may be useful to evaluate therapeutic interventions after experimental ICH and eventually in humans.

Neurology

Liu Z, Li Y, Zhang X, Savant-Bhonsale S and Chopp M. (2008). "Contralesional axonal remodeling of the corticospinal system in adult rats after stroke and bone marrow stromal cell treatment." Stroke **39**(9): 2571-7. [PDF Full-Text](#)

Neurology Research, E&R Building, Room 3056, Henry Ford Hospital, 2799 West Grand Boulevard, Detroit, MI 48202, USA.

BACKGROUND AND PURPOSE: Motor recovery after stroke is associated with neuronal reorganization in bilateral hemispheres. We investigated contralesional corticospinal tract remodeling in the brain and spinal cord in rats after stroke and treatment of bone marrow stromal cells. **METHODS:** Adult male Wistar rats were subjected to permanent right middle cerebral artery occlusion. Phosphate-buffered saline or bone marrow stromal cells were injected into a tail vein 1 day postischemia. An adhesive removal test was performed weekly to monitor functional recovery. Threshold currents of intracortical microstimulation on the left motor cortex for evoking bilateral forelimb movements were measured 6 weeks after stroke. When intracortical microstimulation was completed, biotinylated dextran amine was injected into the left motor cortex to anterogradely label the corticospinal tract. At 4 days before euthanization, pseudorabies virus-152-EGFP and 614-mRFP were injected into left or right forelimb extensor muscles, respectively. All animals were euthanized 8 weeks after stroke. **RESULTS:** In normal rats (n=5), the corticospinal tract showed a unilateral innervation pattern. In middle cerebral artery occlusion rats (n=8), our data demonstrated that: 1) stroke reduced the stimulation threshold evoking ipsilateral forelimb movement; 2) EGFP-positive pyramidal neurons were increased in the left intact cortex, which were labeled from the left stroke-impaired forelimb; and 3) biotinylated dextran amine-labeled contralesional axons sprouted into the denervated spinal cord. Bone marrow stromal cells significantly enhanced all 3 responses (n=8, P<0.05). **CONCLUSIONS:** Our data demonstrated that corticospinal tract fibers originating from the contralesional motor cortex sprout into the denervated spinal cord after stroke and bone marrow stromal cells treatment, which may contribute to functional recovery.

Neurology

Xiong Y, Lu DY, Qu CS, Goussev A, Schallert T, Mahmood A and Chopp M. (2008). "Effects of erythropoietin on reducing brain damage and improving functional outcome after traumatic brain injury in mice - Laboratory investigation." Journal of Neurosurgery **109**(3): 510-21. [PDF Full-Text](#)

Henry Ford Health System, Department of Neurology, Detroit, MI.

Object. This study was designed to investigate the beneficial effects of recombinant human erythropoietin (rhEPO) treatment of traumatic brain injury (TBI) in mice. **Methods.** Adult male C57BL/6 mice were divided into 3 groups: 1) the saline group (TBI and saline [13 mice]); 2) EPO group (TBI and rhEPO [12]); and 3) sham group (sham and rhEPO [8]). Traumatic brain injury was induced by

controlled cortical impact. Bromodeoxyuridine (100 mg/kg) was injected daily for 10 days, starting 1 day after injury, for labeling proliferating cells. Recombinant human erythropoietin was administered intraperitoneally at 6 hours and at 3 and 7 days post-TBI (5000 U/kg body weight, total dosage 15,000 U/kg). Neurological function was assessed using the Morris water maze and footfault tests. Animals were killed 35 days after injury, and brain sections were stained for immunohistochemical evaluation. Results. Traumatic brain injury caused tissue loss in the cortex and cell loss in the dentate gyrus (DG) as well as impairment of sensorimotor function (footfault testing) and spatial learning (Morris water maze). Traumatic brain injury alone stimulated cell proliferation and angiogenesis. Compared with saline treatment, rhEPO significantly reduced lesion Volume in the cortex and cell loss in the DG after TBI and substantially improved recovery of sensorimotor function and spatial learning performance. It enhanced neurogenesis in the injured cortex and the DG. Conclusions. Recombinant human erythropoietin initiated 6 hours post-TBI provided neuroprotection by decreasing lesion volume and cell loss as well as neurorestoration by enhancing neurogenesis, subsequently improving sensorimotor and spatial learning function. It is a promising neuroprotective and neurorestorative agent for TBI and warrants further investigation.

Neurology

Zhang J, Chen J, Li Y, Cui X, Zheng X, Roberts C, Lu M, Elias SB and Chopp M. (2008). "Niaspan treatment improves neurological functional recovery in experimental autoimmune encephalomyelitis mice." Neurobiol Dis. EPub Ahead of Print. [Article Request Form](#)

Department of Neurology, Henry Ford Health System, Detroit, MI 48202, USA.

We investigated the treatment of experimental autoimmune encephalomyelitis (EAE) in mice with Niaspan, an agent used to elevate high-density lipoprotein (HDL). EAE mice were treated with Niaspan starting on the immunization or clinical onset day. Neurological functional recovery was significantly increased in the Niaspan treated mice (100 mg/kgbw) compared to the controls. Inflammatory infiltrates were significantly reduced in the Niaspan treatment group compared to the EAE controls. HDL level, intact myelin area, newly formed oligodendrocytes, regenerating axons, gene and protein levels of sonic hedgehog (Shh)/Gli1 were significantly increased in the Niaspan treated mice compared to EAE controls. These data indicate that Niaspan treatment improved functional recovery after EAE, possibly, via reducing inflammatory infiltrates and demyelination areas, and stimulating oligodendrogenesis and axonal regeneration. Niaspan-mediated activation of Shh/Gli1 pathway may promote functional recovery post-EAE.

Neurosurgery

Hartzfeld P, Elisevich K, Pace M, Smith B and Gutierrez JA. (2008). "Characteristics and surgical outcomes for medial temporal post-traumatic epilepsy." Br J Neurosurg **22**(2): 224-30. [Article Request Form](#)

Department of Neurosurgery, Henry Ford Health System, Detroit, Michigan 48202, USA.

A common post-traumatic location of epileptogenesis is the medial temporal lobe despite evidence of associated diffuse or remote cerebral injury. We undertook a review of post-traumatic medial temporal lobe epilepsy (MTLE) patients as part of an overall post-traumatic epilepsy population to assess the extent of cerebral injury sustained by this subpopulation and to establish whether surgical outcome differed from that of a non-traumatically-induced epilepsy population. A retrospective review of 57 patients operated for post-traumatic epilepsy (PTE) over a 10-year period (1993-2003) was undertaken with particular attention to those undergoing medial temporal resection. Preoperative magnetic resonance imaging (MRI) was assessed for the type and location of abnormalities. Postoperative outcomes were compared with those of patients with MTLE of non-traumatic origin operated by the same surgeon. Of the 57 patients operated, 30 cases underwent medial temporal lobe resection. The most common mechanism of injury was blunt trauma attributable to motor vehicle accidents with imaging abnormalities characterized by medial temporal sclerosis (MTS; 16 cases), T2/FLAIR hyperintensities (nine cases), periventricular gliosis (seven cases), diffuse cerebral atrophy (five cases) and focal encephalomalacia (three cases). Six patients had normal MRI studies. No significant differences in postoperative outcomes were found between post- and non-traumatic MTLE epilepsy groups. The presence of histopathological change in the medial temporal lobe varied greatly and provided no indication of a favourable postoperative outcome. Patients with post-traumatic medial temporal lobe epilepsy respond favourably to surgical treatment. In the case of medial temporal

sclerosis, there is substantial variation of histopathological findings which correlate poorly with current imaging applications. The favourable outcomes obtained following surgery in this group attest to a commonality with other risk factors in the genesis of epilepsy in this location.

Neurosurgery

Lee HK, Xiang C, Cazacu S, Finniss S, Kazimirsky G, Lemke N, Lehman NL, Rempel SA, Mikkelsen T and Brodie C. (2008). "GRP78 is overexpressed in glioblastomas and regulates glioma cell growth and apoptosis." *Neuro Oncol* **10**(3): 236-43. [Article Request Form](#)

Department of Neurosurgery and Hermelin Brain Tumor Center, Henry Ford Health System, Detroit, MI 48202, USA.

We characterized the expression and function of the endoplasmic reticulum protein GRP78 in glial tumors. GRP78 is highly expressed in glioblastomas but not in oligodendrogliomas, and its expression is inversely correlated with median patient survival. Overexpression of GRP78 in glioma cells decreases caspase 7 activation and renders the cells resistant to etoposide- and cisplatin-induced apoptosis, whereas silencing of GRP78 decreases cell growth and sensitizes glioma cells to etoposide, cisplatin, and gamma-radiation. Thus, GRP78 contributes to the increased apoptosis resistance and growth of glioma cells and may provide a target for enhancing the therapeutic responsiveness of these tumors.

Neurosurgery

McLendon R, Friedman A, Bigner D, Van Meir EG, Brat DJ, Mastrogianakis M, Olson JJ, Mikkelsen T, Lehman N, Aldape K, Alfred Yung WK, Bogler O, Vandenberg S, Berger M, Prados M, Muzny D, Morgan M, Scherer S, Sabo A, Nazareth L, Lewis L, Hall O, Zhu Y, Ren Y, Alvi O, Yao J, Hawes A, Jhangiani S, Fowler G, San Lucas A, Kovar C, Cree A, Dinh H, Santibanez J, Joshi V, Gonzalez-Garay ML, Miller CA, Milosavljevic A, Donehower L, Wheeler DA, Gibbs RA, Cibulskis K, Sougnez C, Fennell T, Mahan S, Wilkinson J, Ziaugra L, Onofrio R, Bloom T, Nicol R, Ardlie K, Baldwin J, Gabriel S, Lander ES, Ding L, Fulton RS, McLellan MD, Wallis J, Larson DE, Shi X, Abbott R, Fulton L, Chen K, Koboldt DC, Wendl MC, Meyer R, Tang Y, Lin L, Osborne JR, Dunford-Shore BH, Miner TL, Delehaunty K, Markovic C, Swift G, Courtney W, Pohl C, Abbott S, Hawkins A, Leong S, Haipok C, Schmidt H, Wiechert M, Vickery T, Scott S, Dooling DJ, Chinwalla A, Weinstock GM, Mardis ER, Wilson RK, Getz G, Winckler W, Verhaak RG, Lawrence MS, O'Kelly M, Robinson J, Alexe G, Beroukheim R, Carter S, Chiang D, Gould J, Gupta S, Korn J, Mermel C, Mesirov J, Monti S, Nguyen H, Parkin M, Reich M, Stransky N, Weir BA, Garraway L, Golub T, Meyerson M, Chin L, Protopopov A, Zhang J, Perna I, Aronson S, Sathiamoorthy N, Ren G, Yao J, Wiedemeyer WR, Kim H, Won Kong S, Xiao Y, Kohane IS, Seidman J, Park PJ, Kucherlapati R, Laird PW, Cope L, Herman JG, Weisenberger DJ, Pan F, Van Den Berg D, Van Neste L, Mi Yi J, Schuebel KE, Baylin SB, Absher DM, Li JZ, Southwick A, Brady S, Aggarwal A, Chung T, Sherlock G, Brooks JD, Myers RM, Spellman PT, Purdom E, Jakkula LR, Lapuk AV, Marr H, Dorton S, Gi Choi Y, Han J, Ray A, Wang V, Durinck S, Robinson M, Wang NJ, Vranizan K, Peng V, Van Name E, Fontenay GV, Ngai J, Conboy JG, Parvin B, Feiler HS, Speed TP, Gray JW, Brennan C, Socci ND, Olshen A, Taylor BS, Lash A, Schultz N, Reva B, Antipin Y, Stukalov A, Gross B, Cerami E, Qing Wang W, Qin LX, Seshan VE, Villafania L, Cavatore M, Borsu L, Viale A, Gerald W, Sander C, Ladanyi M, Perou CM, Neil Hayes D, Topal MD, Hoadley KA, Qi Y, Balu S, Shi Y, Wu J, Penny R, Bittner M, Shelton T, Lenkiewicz E, Morris S, Beasley D, Sanders S, Kahn A, Sfeir R, Chen J, Nassau D, Feng L, Hickey E, Zhang J, Weinstein JN, Barker A, Gerhard DS, Vockley J, Compton C, Vaught J, Fielding P, Ferguson ML, Schaefer C, Madhavan S, Buetow KH, Collins F, Good P, Guyer M, Ozenberger B, Peterson J and Thomson E. Citation of this study should reference The Cancer Genome Atlas Research Network, not individual participants. A list of participants are listed by contributing centers at the end of the paper. (2008). "Comprehensive genomic

characterization defines human glioblastoma genes and core pathways." Nature. EPub Ahead of Print. [Article Request Form](#)

Human cancer cells typically harbour multiple chromosomal aberrations, nucleotide substitutions and epigenetic modifications that drive malignant transformation. The Cancer Genome Atlas (TCGA) pilot project aims to assess the value of large-scale multi-dimensional analysis of these molecular characteristics in human cancer and to provide the data rapidly to the research community. Here we report the interim integrative analysis of DNA copy number, gene expression and DNA methylation aberrations in 206 glioblastomas-the most common type of adult brain cancer-and nucleotide sequence aberrations in 91 of the 206 glioblastomas. This analysis provides new insights into the roles of ERBB2, NF1 and TP53, uncovers frequent mutations of the phosphatidylinositol-3-OH kinase regulatory subunit gene PIK3R1, and provides a network view of the pathways altered in the development of glioblastoma. Furthermore, integration of mutation, DNA methylation and clinical treatment data reveals a link between MGMT promoter methylation and a hypermutator phenotype consequent to mismatch repair deficiency in treated glioblastomas, an observation with potential clinical implications. Together, these findings establish the feasibility and power of TCGA, demonstrating that it can rapidly expand knowledge of the molecular basis of cancer.

Otolaryngology

Alvord LS, Benninger MS and Stach BA. (2008). "A preliminary study of the effectiveness of an otolaryngology-based multidisciplinary falls prevention clinic." Ear Nose Throat J **87**(9): 510-3. [PDF Full-Text](#)

Division of Audiology, Department of Otolaryngology, Henry Ford Hospital, 2799 W. Grand Blvd., K-8, Detroit, MI 48202, USA. lalvord1@hfhs.org.

Because the cause of falls is often multifactorial, efforts to identify risk factors and promote prevention would benefit from a multidisciplinary approach in which the contributions of a broad range of body systems are considered. We describe the practices and procedures followed at the otolaryngology-based multidisciplinary Falls Prevention Clinic at Henry Ford Hospital in Detroit. Our team is made up of an otolaryngologist, an audiologist, an internist, and a physical therapist. Our multidisciplinary approach involves evaluations of vestibular and balance function, cardiovascular function, and visual function; lower-extremity strength and sensation; cognition and mood; and medication use. We also assess a number of nonmedical risk factors. Evaluations are made over the course of two clinic visits. To assess the effectiveness of our approach, we conducted a preliminary study based on chart reviews and telephone interviews of 52 patients who had been referred to our clinic for evaluation and counseling. The basis of our study was a comparison of the number of falls that patients had experienced during the 6 months prior to their first visit to our clinic and the number of falls they experienced during the 6 months after their second visit. We found that among "true fallers" (i.e., those who had actually experienced a fall at some point during the study), 64.7% reported that they had experienced fewer falls after their clinic visits than before ($p < 0.001$). Also, 59.1% of patients who had been "frequent fallers" prior to their clinic evaluation (i.e., ≥ 3 falls during the previous 6 mo) reported that they had not fallen at all during the 6 months following their last visit. Finally, our evaluations identified a substantial number of risk factors in individual patients that had been missed previously, including many nonvestibular factors that might not have been detected without a multidisciplinary approach. We conclude that the results of this preliminary study demonstrate the potential that a comprehensive falls prevention clinic can have in reducing the number of falls among outpatients at risk, and we believe that further study is warranted.

Pathology

Gu K, Chan WC and Hawley RC. (2008). "Practical detection of t(14;18)(IgH/BCL2) in follicular lymphoma." Arch Pathol Lab Med **132**(8): 1355-61. [PDF Full-Text](#)

Department of Pathology, Henry Ford Hospital, Detroit, MI 48202, USA.

The t(14;18)(q32;q21) translocation is the genetic hallmark of follicular lymphoma. Detection of this translocation can facilitate the diagnosis of follicular lymphoma and can be used to monitor response to therapy and level of residual disease. We herein review and compare practical techniques for detecting t(14;18)(q32;q21), including conventional cytogenetics, fluorescence in situ hybridization,

Southern blot analysis, and polymerase chain reaction-based assay. Emphasis is placed on fluorescence in situ hybridization and polymerase chain reaction-based assay, given the applicability of these techniques to fixed, paraffin-embedded tissue.

Pathology

Lehman NL. (2008). "Patterns of brain infiltration and secondary structure formation in supratentorial ependymal tumors." Journal of Neuropathology and Experimental Neurology **67**(9): 900-10. [PDF Full-Text](#)

Henry Ford Health System, Detroit, MI.

Ependymomas are generally considered to be noninfiltrative tumors that have discrete borders with adjacent brain tissue. Most occur in the posterior fossa or spinal cord. supratentorial ependymal tumors arise near the ventricular system or, more rarely, within the cerebral white matter or cortex. Presented here are 6 supratentorial ependymal tumors, 3 that primarily involve the cerebral cortex and 3 that extend into the cortex from the underlying white matter. By microscopy, all of these tumors locally infiltrate the cortex and/or white matter along small blood vessels and axonal fiber tracts. They also form other glioma secondary structures including perineuronal tumor cell satellitosis and subpial tumor cell mounds. The 3 cortical ependymal tumors show a spectrum of features ranging from conventional and clear-cell ependymoma-like patterns to more angiocentric glioma-like histology. Because ependymal tumors generally have a significantly better prognosis than other infiltrating gliomas, recognition of their capacity to infiltrate adjacent cortex and white matter is important to prevent the misdiagnosis of oligodendroglioma, astrocytoma, or infiltrating glioma, not otherwise specified. Cortical ependymomas and angiocentric gliomas may comprise a group of locally infiltrative ependymal tumors that are associated with an excellent prognosis after gross total surgical resection.

Pathology

Pimentel JD and MacLeod C. (2008). "Misidentification of *Pandora* species isolated from sputum of a patient with cystic fibrosis and review of *Pandora* species infections in transplant patients." Journal of Clinical Microbiology **46**(9): 3165-68. [Article Request Form](#)

Henry Ford Hospital, Dept Microbiology and Laboratory Medicine, Detroit, MI.

Pandora species are considered emerging pathogens in cystic fibrosis (CF) patients, but few data exist regarding outcomes of patients colonized with these organisms. We report a case of *Pandora* sputorum colonization in a CF patient under consideration for lung transplantation and review five cases of lung transplantation involving *Pandora* species.

Radiation Oncology

Bae K, Bruner DW, Yan Y, Coyne J and Movsas B. (2008). "Patterns of missing Mini Mental Status Exam data in Radiation Therapy Oncology Group (RTOG) brain tumor trials." International Journal of Radiation Oncology Biology Physics **72**(1): S498-S98. [PDF Full-Text](#)

Henry Ford Health System, Detroit, MI.

Radiation Oncology

Elshaiikh MA, Hafeez ZA, Lu M, Ibrahim DR, El Masry T and Yousef A. (2008). "The effect of androgen deprivation therapy on CD4/CD8 T cells in HIV negative patients receiving definitive 3D radiation treatment for their prostate carcinoma: A prospective study." International Journal of Radiation Oncology Biology Physics **72**(1): S293-S94. [PDF Full-Text](#)

Henry Ford Hospital, Detroit, MI.

Radiation Oncology

Feigenberg SJ, Sharma N, Wang L, Cohen R, Buyyounouski M, Lally B and Movsas B. (2008). "Phase I dose escalation trial of image guided stereotactic body radiotherapy for lung tumors." International Journal of Radiation Oncology Biology Physics **72**(1): S114-S14. [PDF Full-Text](#)

Henry Ford Hospital, Detroit, MI.

Radiation Oncology

Ibrahim DR, Siddiqui F, Lu M, Kim W, Schultz D and Elshaikh MA. (2008). "Clinical outcome for pathologic stage IIa endometrial adenocarcinoma after intravaginal brachytherapy: The impact of depth of myometrial invasion." International Journal of Radiation Oncology Biology Physics **72**(1): S363-S64. [PDF Full-Text](#)

Henry Ford Hospital, Detroit, MI.

Radiation Oncology

Jin JY, Yin FF, Tenn SE, Medin PM and Solberg TD. (2008). "Use of the BrainLAB ExacTrac X-Ray 6D system in image-guided radiotherapy." Med Dosim **33**(2): 124-34. [Article Request Form](#)

Department of Radiation Oncology, Henry Ford Health System, Detroit, MI 48202, USA.
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The ExacTrac X-Ray 6D image-guided radiotherapy (IGRT) system will be described and its performance evaluated. The system is mainly an integration of 2 subsystems: (1) an infrared (IR)-based optical positioning system (ExacTrac) and (2) a radiographic kV x-ray imaging system (X-Ray 6D). The infrared system consists of 2 IR cameras, which are used to monitor reflective body markers placed on the patient's skin to assist in patient initial setup, and an IR reflective reference star, which is attached to the treatment couch and can assist in couch movement with spatial resolution to better than 0.3 mm. The radiographic kV devices consist of 2 oblique x-ray imagers to obtain high-quality radiographs for patient position verification and adjustment. The position verification is made by fusing the radiographs with the simulation CT images using either 3 degree-of-freedom (3D) or 6 degree-of-freedom (6D) fusion algorithms. The position adjustment is performed using the infrared system according to the verification results. The reliability of the fusion algorithm will be described based on phantom and patient studies. The results indicated that the 6D fusion method is better compared to the 3D method if there are rotational deviations between the simulation and setup positions. Recently, the system has been augmented with the capabilities for image-guided positioning of targets in motion due to respiration and for gated treatment of those targets. The infrared markers provide a respiratory signal for tracking and gating of the treatment beam, with the x-ray system providing periodic confirmation of patient position relative to the gating window throughout the duration of the gated delivery.

Radiation Oncology

Madawala P, Jin R, Rock J, Movsas B, Kim J, Rosenblum M and Ryu S. (2008). "Radiosurgery alone or postoperative radiosurgery for 1-3 brain metastases." International Journal of Radiation Oncology Biology Physics **72**(1): S201-S02. [PDF Full-Text](#)

Henry Ford Hospital, Detroit, MI.

Radiation Oncology

Mell LK and Movsas B. (2008). "Pharmacologic normal tissue protection in clinical radiation oncology: focus on amifostine." Expert Opin Drug Metab Toxicol **4**(10): 1341-50. [Article Request Form](#)

Assistant Professor University of California San Diego, Department of Radiation Oncology, La Jolla, California, USA, Professor and Chair, Department of Radiation Oncology, Herndon Chair in Oncology Research Henry Ford Health System, Detroit, Michigan, USA +1 313 916 5188 ; +1 313 916 3235 ; bmovsas1@hfhs.org.

Background: Radiation toxicity is an important problem that limits treatment intensity and adversely affects patients' quality of life. Amifostine is a cytoprotector that can reduce toxicity and potentially improve the therapeutic ratio of radiotherapy. Objective: To discuss the role of amifostine in modern radiotherapy and compare and contrast with alternative approaches to reducing radiation toxicity. Methods: We conducted a literature search through Medline to identify randomized clinical trials pertaining to keyword 'amifostine'. We also consulted reviews, book chapters and selected articles regarding amifostine and normal tissue protection. Results/conclusion: Amifostine is an effective normal tissue protector with level I evidence supporting its use in head and neck and gynecologic cancers but studies in other disease sites, although promising, are inconclusive. Further study is needed to demonstrate conclusively the benefits of wider amifostine use.

Radiation Oncology

Neicu T, Nurushev T, Hammoud R, Martin F, Pradhan D, Stricker H, Movsas B, Chetty I and Elshaikh M. (2008). "A study of daily localization with 3D ultrasound, cone beam CT and implanted fiducial markers for patients undergoing IGRT for prostate cancer." International Journal of Radiation Oncology Biology Physics **72**(1): S564-S64. [PDF Full-Text](#)

Henry Ford Health System, Detroit, MI.

Radiation Oncology

Patel AH, Ajlouni M, Jin J, Lu M, Ryu S and Movsas B. (2008). "Is stereotactic body radiotherapy (SBRT) safe for central non-small cell lung cancer (NSCLC) lesions?" International Journal of Radiation Oncology Biology Physics **72**(1): S434-S435. [PDF Full-Text](#)

Henry Ford Health System, Detroit, MI.

Radiation Oncology

Patel MK, Patel DA, Lu M, Elshaikh M and Movsas B. (2008). "Does marital status influence survival among women with invasive cervical cancer? Analysis of population-based surveillance, epidemiology and end results (SEER) data." International Journal of Radiation Oncology Biology Physics **72**(1): S42-S43. [PDF Full-Text](#)

Henry Ford Health System, Detroit, MI.

Radiation Oncology

Reding AK, Nurushev T, Hammoud R, Neicu T and Chetty IJ. (2008). "Dosimetric evaluation of patient shifts derived from IGRT using cone beam CT (CBCT) with and without patient bladder and rectum preparation." International Journal of Radiation Oncology Biology Physics **72**(1): S567-S567. [PDF Full-Text](#)

Henry Ford Hospital, Detroit, MI.

Radiation Oncology

Ryu S. (2008). "Pattern of failure after spine radiosurgery of metastatic epidural compression." International Journal of Radiation Oncology Biology Physics **72**(1): S213-S214. [PDF Full-Text](#)

Henry Ford Health System, Detroit, MI.

Radiation Oncology

Sahgal A, Gibbs I, Ryu S, Ma L, Gerszten P, Soltys S, Weinberg V, Fowler J, Chang E and Larson D. (2008). "Preliminary guidelines for avoidance of radiation-induced myelopathy following spine stereotactic body radiosurgery (SBRS)." International Journal of Radiation Oncology Biology Physics **72**(1): S220-S20. [PDF Full-Text](#)

Henry Ford Hospital, Detroit, MI.

Radiation Oncology

Sheim SA, Bagher-Ebadian H, Panda S, Nelsen K, Brown SL, Chetty I, Ewing JR and Mikkelsen T. (2008). "MRI measures of vascular parameters predict treatment response to radiation and anti-angiogenic agents in rat brain tumors." International Journal of Radiation Oncology Biology Physics **72**(1): S82-S82. [PDF Full-Text](#)

Henry Ford Health System, Detroit, MI.

Radiation Oncology

Siddiqui F, Barton K, Peng H, Zhang H, Nelson KK, Mikkelsen T, Brown S, Movsas B and Freytag SO. (2008). "Toxicity, and efficacy of replication-competent adenovirus-mediated suicide gene therapy with radiation in a preclinical model of glioma." International Journal of Radiation Oncology Biology Physics **72**(1): S164-S64. [PDF Full-Text](#)

Henry Ford Health System, Detroit, MI.

Radiation Oncology

Walker EM, Rodriguez AI, Kohn B, Pegg J, Bell RM and Levine RA. (2008). "Acupuncture for the treatment of vasomotor symptoms in breast cancer patients receiving hormone suppression treatment." International Journal of Radiation Oncology Biology Physics **72**(1): S103-S03. [PDF Full-Text](#)

Henry Ford Health System, Dept Radiation Oncology, Detroit, MI.

Sleep Medicine

Drake CL, Scofield H and Roth T. (2008). "Vulnerability to insomnia: the role of familial aggregation." Sleep Med **9**(3): 297-302. [PDF Full-Text](#)

Sleep Disorders and Research Center, Henry Ford Hospital, 2799 West Grand Blvd, CFP3, Detroit, MI 48202, USA. cdrake1@hfhs.org.

BACKGROUND: The goal of this study was to determine the degree of familial aggregation in vulnerability to stress-related sleep disturbance among siblings. One approach to investigating a potential "familial" predisposition to sleep disturbance is to examine the relationship between siblings on a standard measure of vulnerability to stress-related sleep disturbance. **DESIGN:** Cross-sectional data on insomnia, vulnerability to stress-related sleep disturbance, sleepiness, habitual sleep, and additional demographic variables was collected separately from pairs of biological siblings. Data were collected during a 15-20min phone assessment. **PARTICIPANTS:** Interviews on a total of 62 individuals (31 sibling pairs) were completed. A total of 8 individuals and their respective siblings were excluded after meeting conservative criteria for Diagnostic and Statistical Manual of Mental Disorders, Fourth edition (DSM-IV)-based insomnia. The mean age of the sample was 51.1+/-12.1 years (range 18-70) and habitual nightly total sleep time averaged 6.91+/-1.42h/night. **RESULTS:** Individuals completed the Ford Insomnia Response to Stress Test (FIRST), a standardized measure of individual vulnerability to stress-induced sleep disturbance. The intraclass correlation coefficient (ICC) was $r = 0.61$, $df = 23$, $p = 0.001$ for the relationship between siblings in FIRST scores. This indicated that 37.2% of the variance in vulnerability to stress-related sleep disturbance can be accounted for by

familial aggregation. This relationship remained after controlling for potential confounds including age, gender, shift schedule, and psychiatric history. CONCLUSIONS: Our data support the notion that vulnerability to stress-related sleep disturbance has a strong familial aggregation. Additional studies are needed to determine the genetic or environmental origins of this relationship and its underlying biological substrates.

Sleep Medicine

Fava M, McCall WV, Wessel T, Amato D, Paska W, Montgomery S and Roth T. (2008). "Eszopiclone co-administered with fluoxetine for insomnia co-existing with major depressive disorder (MDD): A subgroup analysis." International Journal of Neuropsychopharmacology **11**(1): 306-06. [Article Request Form](#)

Henry Ford Hospital, Sleep Disorders Center, Detroit, MI.

Sleep Medicine

Krystal A, Schaefer K, Rockett C, Fava M, Amato D and Roth T. (2008). "Differential sleep effects of eszopiclone treatment and discontinuation in patients with primary insomnia and insomnia co-existing with major depressive disorder or generalized anxiety disorder." International Journal of Neuropsychopharmacology **11**:306-06. [Article Request Form](#)

Henry Ford Hospital, Sleep Disorders Center, Detroit, MI.

Sleep Medicine

Roth T, Hull SG, Lankford DA, Rosenberg R and Scharf MB. (2008). "Low-dose sublingual zolpidem tartrate is associated with dose-related improvement in sleep onset and duration in insomnia characterized by middle-of-the-night (MOTN) awakenings." Sleep **31**(9): 1277-84. [Article Request Form](#)

Henry Ford Hospital Sleep Disorders and Research, Detroit, MI 48202, USA.
troth1@hfhs.org.

STUDY OBJECTIVES: To evaluate the efficacy and safety of low-dose, sublingual zolpidem tartrate when taken during a scheduled middle-of-the-night (MOTN) awakening in subjects with insomnia characterized by difficulty returning to sleep following MOTN awakenings. **DESIGN:** Randomized, double-blind, placebo-controlled, 3-way crossover study. **METHODS:** Each treatment period consisted of 2 consecutive nights of dosing separated by a washout of 5 to 12 days. Subjects were awakened 4 h after lights out, dosed with sublingual zolpidem tartrate (3.5 mg or 1.75 mg) or placebo, kept awake for 30 min, and then returned to bed for an additional 4 h. Sleep parameters were assessed by polysomnography (PSG) and post-sleep questionnaires. **SETTING:** Five sleep laboratories. **PARTICIPANTS:** Adults (24 males, 58 females, mean age 45.9 y) with a diagnosis of DSM-IV primary insomnia and a history of prolonged MOTN awakenings. Baseline difficulties with MOTN awakenings were confirmed by a 10-day screening sleep diary and PSG screening. **RESULTS:** Low-dose sublingual zolpidem tartrate demonstrated significant dose-related decreases in latency to persistent sleep and total sleep time ($P < 0.001$) compared to placebo after MOTN dosing. All subject reports paralleled PSG observations. Neither dose showed next-morning impairment on the DSST or ratings of sleepiness. The 3.5-mg dose produced improvements in reports of sleep quality ($P < 0.001$), ability to function, and level of refreshed sleep ($P < 0.05$ for both dosages) compared to placebo. Sublingual zolpidem tartrate lozenges were generally safe and well tolerated. **CONCLUSIONS:** Low-dose sublingual zolpidem tartrate may be suitable for treatment of patients who have difficulty resuming sleep after MOTN awakenings.

Sleep Medicine

Scofield H, Roth T and Drake C. (2008). "Periodic limb movements during sleep: population prevalence, clinical correlates, and racial differences." Sleep **31**(9): 1221-7. [PDF Full-Text](#)

Sleep Disorders and Research Center Henry Ford Hospital, Detroit, MI 48202, USA.

STUDY OBJECTIVE: There is growing interest in the study of periodic limb movements during sleep and their potential clinical correlates. The aim of the present analysis is to address the lack of population-based studies using polysomnographic (PSG) measures to determine the prevalence of periodic limb movements during sleep in specific racial groups as well as the general population. **SETTINGS AND PARTICIPANTS:** A community-based sample of 592 participants drawn from the general population of tricounty Detroit (mean age = 41.9 +/- 12.6 years; 52.9% F; 31.5% African American). All individuals were assessed using objective and subjective measures in the sleep laboratory. **MEASUREMENTS:** Participants were evaluated during a 24-h laboratory assessment, including a polysomnogram and multiple sleep latency test. Periodic leg movements were scored using standard criteria. Reports of sleep disturbance and daytime sleepiness were also assessed using standardized measures including the Global Sleep Assessment Questionnaire (GSAQ) and the Epworth Sleepiness Scale (ESS). **RESULTS:** The overall prevalence of periodic limb movements during sleep (PLMSI >15) was 7.6%. African Americans had a lower prevalence of PLMSI >15 than Caucasians (4.3% vs. 9.3%; $\chi^2= 4.5$, $P < 0.05$). Regardless of race, symptoms of insomnia were significantly higher in individuals with PLMSI >15 than in those with PLMSI \leq 15 (45% vs. 25%; $\chi^2= 6.84$, $P < 0.01$). **CONCLUSION:** This is the first study to determine the prevalence of PLMS in a population-based sample using standardized objective criteria. A key finding of the present study is that racial differences in this PSG parameter do exist, with African Americans being less likely to have elevated PLMS.

Surgery

Falvo A, Horst HM, Rubinfeld I, Blyden D, Brandt MM, Jordan J, Faber MD and Silverman N. (2008). "Acute renal failure in cardiothoracic surgery patients: what is the best definition of this common and potent predictor of increased morbidity and mortality." Am J Surg **196**(3): 379-83. [PDF Full-Text](#)

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BACKGROUND: Universal agreement on criteria for acute renal failure (ARF) is lacking. The purpose of the current study was to determine which of 6 definitions for ARF best predicted clinical outcomes in postoperative cardiothoracic surgery (CTS) patients. **METHODS:** Criteria for ARF were retrospectively applied to 1,085 CTS patients. General linear models analyzed length of stay (LOS) and ventilator days with logistic regression for mortality. **RESULTS:** Thirty-seven percent of patients met at least 1 of 6 definitions of ARF. For each 1-mg/dL increase from the initial creatinine, LOS increased by 6.96 days, ventilator days increased by 3.58 days, and mortality increased by 2.23 times ($P < .0001$). **CONCLUSIONS:** One definition that best predicted ARF was not found. ARF was a significant independent predictor of increased mortality, LOS, and ventilator days. Even small increases in creatinine correlate with clinically significant worsening of expected outcomes.

Surgery

Kakkos SK, Haddad GK, Haddad JA and Scully MM. (2008). "Secondary patency of thrombosed prosthetic vascular access grafts with aggressive surveillance, monitoring and endovascular management." Eur J Vasc Endovasc Surg **36**(3): 356-65. [Article Request Form](#)

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BACKGROUND: To study the long-term patency of thrombosed prosthetic vascular access grafts treated with percutaneous mechanical thrombectomy (PMT) followed by aggressive surveillance and monitoring and repeated endovascular interventions. **STUDY DESIGN:** Two hundred seven vascular access grafts presented with first-time thrombosis were treated with PMT using the AngioJet device ($n=185$) or the Arrow-Trerotola percutaneous thrombolytic device ($n=22$) followed by angioplasty (+/- stenting) of the anatomical lesion responsible for the thrombotic event. Clinical success was considered at least one successful subsequent hemodialysis session. Graft surveillance/monitoring included clinical and hemodialysis parameters to detect a failing or thrombosed graft. **RESULTS:** PMT was technically successful in 202 cases (97.6%) and clinically successful in 193 cases (93.2%). During

follow-up, 149 got thrombosed and either abandoned (n=33) or underwent at least once repeat thrombectomy (n=116); finally 100 grafts were abandoned (n=90), ligated (n=5) or removed (n=5). Endovascular management (0.54 procedures per 100 graft-days, thrombectomy, n=307 sessions and angioplasty, n=162 sessions) increased significantly functional assisted-primary patency rates from 29% and 14% at 1 and 2 years to a secondary patency of 62% and 47%, respectively. Secondary patency was worse in loop grafts (P=.02) and intermediate graft thrombosis (occurred between 31-182 days after graft placement, P<.001) and better when renal failure was due to hypertension or diabetes (compared to other or cryptogenic causes, P=.048) or isolated angioplasty for graft dysfunction during follow-up had been performed (P<.001). Multivariate analysis identified intermediate graft thrombosis and isolated angioplasty as independent predictors of secondary patency (P<.001, relative risk 2.77 and P<.001, relative risk 0.28, respectively). CONCLUSIONS: PMT is a highly successful procedure with acceptable long-term secondary patency results, provided that aggressive endovascular management of subsequent thrombotic or dysfunction episode is performed. Further research to identify the causes of intermediate graft thrombosis is justified.

Surgery

Lin JC, Reddy DJ, Eun D, Fumo M and Menon M. (2008). "Robotic-Assisted Laparoscopic Dissection of the Infrarenal Aorta and Iliac Artery: A Technical Description and Early Results." Ann Vasc Surg. EPub Ahead of Print. [PDF Full-Text](#)

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We report our initial experience with a novel robotic-assisted dissection of the infrarenal aorta and iliac arteries for the treatment of aortoiliac occlusive disease and abdominal aortoiliac aneurysm. Seven patients underwent the procedure using the da Vinci Surgical System. Transabdominal, retroperitoneal dissection of the aorta and iliac arteries was completed using the robotic system; then, a mini-laparotomy and hand-sewn aorta-to-graft anastomosis were performed. There was no mortality in this series of patients. This novel technique may overcome the difficulty of aortic dissection in a purely laparoscopic aortic surgery and serves as a bridging step toward totally robotic-assisted aortic surgery.

Surgery

Lonergan I and Moquin K. (2008). "Use of the VersaJet for Pedicle Deepithelialization During Breast Reduction Surgery." Aesthetic Plast Surg. EPub Ahead of Print. [PDF Full-Text](#)

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BACKGROUND: Many modern techniques of breast reduction require that a pedicle of breast tissue be deepithelialized. The process of deepithelialization is both tedious and time consuming. Many techniques have been described to facilitate the process of deepithelialization in breast reduction, but none have replaced the gold standard of using the scalpel. This series details the authors' results using the VersaJet Hydrosurgery System for pedicle deepithelialization in breast reduction surgery. METHODS: In this study, 20 patients underwent inferior pedicle breast reduction using the VersaJet for pedicle deepithelialization between September 2006 and June 2007. The overall time required for pedicle deepithelialization using the VersaJet was compared with the average overall time required for deepithelialization using the scalpel. Intraoperative and postoperative complications were recorded. RESULTS: An overall time-savings of 10 to 25 min per case was noted using the VersaJet for pedicle deepithelialization rather than the scalpel. No intraoperative or postoperative complications were encountered due to use of the VersaJet for pedicle deepithelialization. CONCLUSIONS: The VersaJet is a safe and effective tool for pedicle deepithelialization in breast reduction surgery. The VersaJet significantly facilitates the process of pedicle deepithelialization and requires less time than use of the scalpel for the procedure.

Urology

Menon M, Muhletaler F, Campos M and Peabody JO. (2008). "Assessment of early continence after reconstruction of the periprostatic tissues in patients undergoing computer

assisted (robotic) prostatectomy: results of a 2 group parallel randomized controlled trial." J Urol **180**(3): 1018-23. [PDF Full-Text](#)

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PURPOSE: Several case series have shown that reconstruction of the anterior or posterior periprostatic tissues facilitates early return of urinary continence after radical prostatectomy. We conducted a randomized clinical trial comparing early continence rates in patients undergoing urethrovesical anastomosis with or without periprostatic reconstruction. **MATERIALS AND METHODS:** A total of 116 consecutive patients undergoing computer assisted (robotic) prostatectomy performed by 1 of 2 experienced surgeons were randomized to single (without periprostatic reconstruction) or double layer (with periprostatic tissue reconstruction) urethrovesical anastomosis. Urinary loss was measured by pad weight at 1, 2, 7 and 30 days after catheter removal. Patients and data gatherers were blinded to treatment allocation. **RESULTS:** There were 57 patients randomized to the single and 59 to the double layer anastomosis group. All patients completed the study and followup. Using the conventional definition of urinary continence (0 to 1 pads daily) 26% and 34%, 49% and 46%, 51% and 54%, and 74% and 80% of patients undergoing single layer or double layer anastomoses were continent at 1, 2, 7 and 30 days, respectively ($p > 0.1$). Of the patients in the 2 groups 7% and 15%, 14% and 14%, 16% and 20%, and 47% and 42% had no urinary leakage (0 gm or 0 pads daily) at these intervals, respectively ($p > 0.1$). In each group 1 patient required prolonged catheterization because of cystographic evidence of anastomotic leakage. There were no other complications. **CONCLUSIONS:** Early urinary continence rates were high in patients undergoing single or double layer urethrovesical anastomosis. We found no improvement in early continence rates with reconstruction of the periprostatic tissues.

Urology

Amin MB, Paner GP, Alvarado-Cabrero I, Young AN, Stricker HJ, Lyles RH and Moch H. (2008). "Chromophobe Renal Cell Carcinoma: Histomorphologic Characteristics and Evaluation of Conventional Pathologic Prognostic Parameters in 145 Cases." Am J Surg Pathol. Epub Ahead of Print. [Article Request Form](#)

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The aggregate literature suggests that chromophobe renal cell carcinoma (RCC) is biologically a tumor of low malignant potential with reported 5-year and 10-year survival rates of 78% to 100% and 80% to 90%, respectively. The conventional prognostic parameters that determine the outcome of the tumors that progress remain to be fully characterized. Clinicopathologic features of 145 cases were correlated with outcome. The mean age of the patients was 59 years (range, 27 to 82) and the male to female ratio was 1.1:1. Most tumors were well circumscribed and averaged 8.0 cm (range, 1.0 to 30.0 cm); multifocality and bilaterality were present in 8% and 3% of patients. Sixty (41%) were eosinophilic variant (greater than 80% eosinophilic cells), 18 (12%) were classic type (greater than 80% pale cells), and 67 (46%) were mixed (containing variable admixture of pale and eosinophilic cells). A subset of eosinophilic chromophobe RCC contained or had areas similar to renal oncocytomas. These tumors tended to be more commonly bilateral (11%) and multifocal (22%) and were not associated with necrosis or sarcomatoid change. Sarcomatoid change was present in 12/145 (8%) tumors. By histologic grade, 1%, 19%, 74%, 6% were Fuhrman nuclear grade 1, 2, 3, and 4. Nineteen percent, 21%, 28%, 13%, 4%, 1%, and 3% were pT (2002) stage pT1a, pT1b, pT2, pT3a, pT3b, pT3c, and pT4 tumors. Two percent tumors were pN1 at presentation and 2.8% tumors were M1 at presentation. Follow-up (1 to 182 mo, mean 48 mo, median 37 mo) was available in 123 cases. Disease progression (local recurrence 4, metastasis 15, and/or death 10) was seen in 20 patients. In univariable analysis, tumor size ($P=0.025$), pT stage ($P<0.001$), broad alveolar architecture ($P=0.012$), Fuhrman nuclear grade ($P<0.001$), microscopic tumor necrosis ($P=0.001$), vascular invasion ($P=0.020$), and sarcomatoid change ($P<0.001$) were associated with progression. A multivariable Cox regression model revealed sarcomatoid change ($P=0.013$, estimated relative hazard 4.7), microscopic necrosis ($P=0.020$, relative hazard=3.5), and pT stage ($P=0.025$, relative hazard 3.4) as independent predictors

of aggressive chromophobe RCC. Although the large majority of chromophobe RCCs have a favorable prognosis, a distinct subset of patients progress. The pT stage of tumor, tumor necrosis, and sarcomatoid change all predict aggressive phenotype of chromophobe RCC. The adverse presence of these features in a nephrectomy specimen with chromophobe RCC warrants active surveillance, and these patients may be candidates for adjuvant therapies as they become available.

Urology

Rogers CG, Linehan WM and Pinto PA. (2008). "Robotic nephrectomy for kidney cancer in a horseshoe kidney with renal vein tumor thrombus: novel technique for thrombectomy." J Endourol **22**(8): 1561-3; discussion 63. [Article Request Form](#)

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