# Society of General Internal Medicine

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# ABSTRACTS

## CLINICAL VIGNETTES

**CYCLOSPORINE-INDUCED THROMBOTIC MICROANGIOPATHY IN A RENAL TRANSPLANT PATIENT.** A. Abdel Latif[1], H. Jneid[1], I. Tleyjeh[1], W. Braun[1]; [1]Cleveland Clinic, Cleveland, OH *(Tracking ID #52426)*

LEARNING OBJECTIVES: 1. Learn the differential diagnosis of renal graft failure post-transplantation. 2. Recognize cyclosporine as a cause of thrombotic microangiopathy post-transplantation. 3. Diagnose thrombotic microangiopathy (TMA) in the absence of classical features.
CASE INFORMATION: A 48 yo F was admitted for further work up of her deteriorating renal graft function 5 months after transplantation. Past medical history is significant for living unrelated donor kidney transplantation for ESRD secondary to polycystic kidney disease. She was positive and her donor was negative for cytomegalovirus (CMV) antibodies, and she received appropriate prophylaxis. Post-transplant immunosuppression included cyclosporine (CSA), mycophenolate, azathioprine and prednisone. She subsequently developed tissue invasive CMV infection that was successfully treated. A renal biopsy 1 month earlier showed no rejection. On admission, her physical exam was unremarkable. Labs showed: Hb = 7.4 ; platelet = 174; BUN = 77; creatinine = 4.5; LDH = 270; peripheral smear: microcytic anemia but no schistocytes. Blood and urine were negative for CMV, and upper gastrointestinal endoscopy revealed no evidence of CMV infection. Polymerase chain reaction for parvovirus B19 and hepatitis C antibody panel were negative. Repeat T lymphocyte cross match was normal. Allograft ultrasound and work up for hypercoaguable state were negative. Kidney biopsy showed thrombotic microangiopathic (TMA) changes with no evidence of graft rejection or CMV infection. All her CSA levels had been in therapeutic range. The TMA was attributed to CSA, which was changed to tacrolimus. She underwent plasmapheresis, received intravenous immunoglobulins and triple therapy with calcium channel blockers-pentoxifylline-aspirin. Kidney function continued to worsen and hemodialysis was initiated 7 months after her renal transplantation.
DISCUSSION: CSA-induced thrombotic microangiopathy (TMA) is one of the uncommon but dreadful complications of CSA therapy in transplant patients. Incidence varies widely from 5%to 28% with higher prevalence in women. Risk factors for TMA nephropathy include CMV infection, other active viral infection (hepatitis C, parvovirus), bacterial infections, and prior history of thrombocytopenia. CSA-induced TMA usually occurs within the first 6 months of transplantation with a subtle presentation, though the onset has been reported up to 5 years after the transplantation. Clues to the diagnosis include refractory anemia, acidosis, thrombocytopenia, increasing serum BUN and creatinine levels and elevated serum LDH level. Biopsy is required for diagnosis. Our patient had an atypical presentation with renal failure and anemia (partially secondary to renal failure) only, but had normal platelet count and no peripheral schistocytes or other systemic features. The pathogenesis of TMA nephropathy involves renal endothelial cell injury and decreased prostacyclin levels. Graft salvage is achieved in only 25 – 45% of patients.

**BROWN RECLUSE SPIDER BITE: JUST MYALGIAS OR SOMETHING MORE?** F. Aduli[1], J. Eichhorn[1], J. Wiese[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #51263)*

LEARNING OBJECTIVES: 1) Persistence of general symptoms following a brown recluse spider bite should prompt consideration of a complication. 2) Brown recluse spider bite can cause rhabdomyolysis.
CASE INFORMATION: A 36 year-old man presented with myalgias, fever and vomiting. One day prior he noted a one-centimeter macular, erythematous lesion on his left shoulder and paresthesia in his left arm. The rash was attributed to a spider bite. Four days later he returned to the emergency department complaining of dark urine. He denied ethanol abuse, illegal drug use, or intense physical activity. His blood pressure was 116/59 and temperature 37.6. The remaining exam was normal. The CPK was 24,000 mg/dL and AST 630 IU. The toxicology screen, hepatitis panel, and blood cultures were negative. Rhabdomyolysis was diagnosed. Aggressive intravenous hydration was initiated resulting in preservation of renal function. The CPK peaked at 65,000 mg/dL before returning to normal.
DISCUSSION: The brown recluse spider is endemic to the south and prefers to shelter in infrequently used or secluded areas. A history of exposure to secluded areas is therefore important in making the diagnosis. Although the majority of bites are limited to a local reaction, ten percent of the cases may result in a severe local reaction or systemic symptoms (Loxoscelism). Loxoscelism is characterized by fever, vomiting, myalgias and hemolysis. Anuria may develop; but acute renal failure is rare. Severe skin necrosis occurs in twenty percent and one percent develop extensive hemolysis. The spider bites are treated with local antibiotics and dapsone while only supportive care can be offered for the systemic manifestations. Persistence of general symptoms following a brown recluse spider bite should prompt consideration of rhabdomyolysis.

**PROGRESSIVE DEBILITATING WEAKNESS IN A PREVIOUSLY ROBUST ELDERLY WOMAN.** G. Agarwal[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #48164)*

LEARNING OBJECTIVES: 1) Recognize the presentation of myasthenia gravis (MG). 2) Diagnose MG using laboratory and clinical parameters. 3) Recognize the treatment of MG.
CASE INFORMATION: Mrs. A.B. is a 74 year old female with hypertension and diabetes mellitus who presented with a nine month history of progressive weakness. She initially developed bilateral proximal arm weakness which progressed to bilateral proximal leg weakness. She sought medical attention when she was no longer able to ambulate. She denied numbness, tingling, or pain, but did admit to dysphagia with solids and liquids upon initiation of swallowing. Physical exam revealed ptosis of the left eye and intact extraocular muscles. Muscle strength in bilateral biceps/triceps was 3/5 and hip flexors were 2/5. She was unable to maintain her arms in forward abduction for greater than 10 seconds and was unable to ambulate. The remainder of the neurological exam was unremarkable. Laboratory data revealed a normal CPK,ANA,ESR, thyroid function studies, and cortisol level. EMG revealed decreasing amplitude with repetitive stimulation, a pattern consistent with MG. Acetylcholine receptor antibody levels were negligible. She was treated with IV immunoglobulin and responded well. Upon discharge, she was able to ambulate with minimal assistance.
DISCUSSION: Myasthenia gravis (MG) is a disorder of the neuromuscular junction due to antibody-mediated autoimmune attack of acetylcholine receptors on the post-synaptic surface. MG can affect all ages, although it peaks in women in their twenties and thirties and men in their fifties and sixties. The main features are weakness and fatigability with preservation of deep tendon reflexes. Diplopia, ptosis, facial weakness, and dysphagia are common. Diagnosis can be solidified with edrophonium, an anti-acetylcholinesterase that inhibits the breakdown of acetylcholine. In myasthenic patients, there is an improvement in strength of weak muscles lasting for approximately five minutes. Further testing with repetitive nerve stimulation will show a rapid reduction in the amplitude of the evoked responses of more than 10 – 15%. Anti-acetylcholine receptor antibodies are detectable in the serum of approximately 80% of all myasthenic patients. Its presence is virtually diagnostic, but a negative test does not exclude the disease. Treatment of MG includes anticholinesterase medications. In patients with a myasthenic "crisis", IV immunoglobulin or plasmapheresis is effective as short-term treatment. For long-term management, glucocorticoids, cyclosporine, azathioprine, and mycophenolate have been shown to be effective. CT or MRI of the mediastinum should be performed to rule out thymoma, which should be removed if found. In the absence of a thymoma, thymectomy is recommended in patients with generalized MG who are between the ages of puberty and at least 55 years old. Up to 85% of patients will experience improvement after thymectomy and 35% of these patients achieve drug-free remission.

**AN ETHICAL DILEMMA: TREATING THE COMPLICATIONS OF INTRAVENOUS DRUG USERS.** S. Agresta[1], M. Kane[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #50822)*

LEARNING OBJECTIVES: 1. Discuss the ethical dilemma involved with the treatment of active intravenous drug users.
CASE INFORMATION: A 44 year-old presented with progressive dyspnea, fevers and substernal tightness. He had endocarditis requiring porcein valve replacement in 1993. He started using intravenous cocaine and heroin weekly one month prior. He had a fever of 40 C and a holosystolic murmur. Blood cultures grew steptococcus viridans. Transesophageal echocardio-

(1.5%). Visit length, which averaged 22:40 (sd = 13:48), increased with the number of agenda items ($r = .46$ $p < .001$). Visits with female patients tended to include 1 more agenda item than did those with males (mean = 6.08 vs 5.09, $p < .001$); while there was no associated time difference in Chicago, visits with female patients in Burlington took an average of 6min longer than did those with males (mean = 24:00 vs 17:54, $p < .001$). Visits with patients ≥45 years old included an average of 1.5 more agenda items than did those with younger patients (mean = 6.30 vs 4.76, $p < .001$), and took an average of 3:22 longer in Chicago ($p < .05$) and 2:52 longer in Burlington (ns).
CONCLUSION: As compared to diagnosis codes, chart-reviews, and self-reports, videotape is a robust source of detailed data regarding agenda items raised during medical encounters. Our observations illustrate the complex nature of general practice and reinforce the importance of working with patients to discuss and manage visit agendas in an increasingly time-sensitive practice environment.

**USAGE OF UPTODATE® AT AN ACADEMIC MEDICAL CENTER.** S.M. Maviglia[1], M.T. Martin[1], S.J. Wang[1], K.E. Burk[1], F.Y. Chang[1], L. Markson[2], P. Bonis[3], G.J. Kuperman[1]; [1]Partners HealthCare System, Inc., Chestnut Hill, MA; [2]CareGroup Healthcare System, Boston, MA; [3]UpToDate, Wellesley, MA *(Tracking ID #51917)*

BACKGROUND: Electronic medical resources are becoming increasingly accessible at the point of care. However, little is known about who uses them, and when and where they are used in the health care delivery process. We used a web-based survey instrument to determine the demographics and usage patterns of UpToDate® (UTD) users at a tertiary academic medical center.
METHODS: A sample of physicians and nurse practitioners (NPs) at Brigham & Women's Hospital (BWH) and Massachusetts General Hospital (MGH) was emailed invitations to complete an online web survey about their use of UTD.
RESULTS: We received 550 responses from 2011 emailed invitations (27.3%). About two-thirds (63%) were attending physicians, 19% trainees, and 15% NPs. Respondents averaged 67% clinical time, and 70% classified themselves as predominantly outpatient. One-third (36%) practiced general medicine, 47% were medical specialists, and the remainder were surgeons or other. About two-thirds (64%) of the respondents described themselves as UTD users (at least 3 uses per month). Users accessed UTD an average of 14 times per month, and 17% used it exclusively as their only electronic reference. Over 40% of non-users said they either were unaware of this resource or had not had time to learn to use it. Actual usage occurred most often before or after patient contact, but 50% had used UTD in the presence of the patient. UTD was primarily used to look up disease-related information, including diagnosis and treatment; however, 85% of NPs used it for medication information (as opposed to only 53% of physicians). Over 90% of users reported that using UTD was integral to their decision making, but less than half reported that it eliminated the need for a referral. In the subgroup analyses, there was no significant difference in usage patterns among specialists and non-specialists, nor between clinicians who spent high or low percentages of their time seeing patients. Physicians were more likely than NPs to use UTD to educate themselves (84% vs. 67%, $p < 0.0001$); and among physicians, trainees were more likely than attendings to use UTD to educate themselves (96% vs. 77%, $p < 0.0001$). NPs, on the other hand, used it more often to educate patients (69% vs. 35%, $p < 0.05$).
CONCLUSION: Electronic medical references (UpToDate®) are frequently utilized to guide patient management at all steps of the health care delivery process. Physicians and nurse practitioners use the same resource in different ways and for different purposes. Usage patterns also vary with physician level of training, but not with specialty. Non-use of UpToDate®) is primarily due to lack of familiarity with this resource. Limitations of the study are that the results may not be generalizable to non-academic centers, and medical students and staff nurses were not included in the survey.

**VIEWS OF SINGLE-PAYER NATIONAL HEALTH INSURANCE: A SURVEY OF MASSACHUSETTS PHYSICIANS.** D. Mccormick[1], D.U. Himmelstein[1], S. Woolhandler[1], D.H. Bor[1]; [1]The Cambridge Hospital and Harvard Medical School, Cambridge, MA *(Tracking ID #51360)*

BACKGROUND: The number of uninsured Americans continues to climb, and medical care costs are once again rising rapidly. One proposed solution is single-payer national health insurance (NHI). Because of their unique role in the health care system, physicians could represent either a barrier to or catalyst for such reform. Yet, physicians' views of NHI have not been well studied.
METHODS: We conducted a mailed survey of a random sample of Massachusetts physicians (from the AMA Master file) regarding their views on NHI, as well as on health policy and physician work-life issues which might be addressed by NHI. We also assessed the association between support for each of these issues and support for NHI.
RESULTS: 904/1787 physicians responded to our survey (50.6%). Respondants did not differ from non-respondants with regard to gender or year of graduation from medical school, but differed slightly in specialty-mix. When asked which structure would provide the best care for a fixed amount of money, 63% of physicians chose NHI, 11% chose managed care and 26% fee-for-service in a competative market. Yet, only 52% believed that physician colleagues support NHI. A clear majority preferred to work under a salary system, would give up income to reduce paperwork, believe that it is government's responsibility to ensure provision of medical care and would not allow insurance firms to play a major role in health care. Support for each of these ideas is associated with support for NHI.
CONCLUSION: A clear majority physicians in the state of Massachusetts favor NHI over both managed care and fee-for-service systems. If physicians elsewhere hold similar views, doctors could play a major role in a renewed push for NHI.

**TESTING FOR COCAINE USE WITHOUT CONSENT IN EMERGENCY DEPARMENT PATIENTS WITH CHEST PAIN.** D. Mccormick[1], S. Woolhandler[1], D. Himmelstein[1], D. Bor[1]; [1]The Cambridge Hospital and Harvard Medical School, Cambridge, MA *(Tracking ID #52034)*

BACKGROUND: Guidelines recommend asking patients with acute chest pain (ACP) about cocaine use. Testing for cocaine without patient consent, however, is ethically questionalble and may result in legal, employment or other harms to the patient.
METHODS: We surveyed all 121 directors of emergency medicine training programs in the United States to assess the frequency of asking about cocaine use, testing for cocaine, and consent for such testing when performed in patients with ACP in their emergency departments (EDs). These 3 questions were asked for 2 clinical vignettes of ACP patients who differed only by sociodemographic features. Questions used a 5 point Likert scale (very likely, somewhat likely, as likely as not, somewhat unlikely and very unlikely).
RESULTS: 86/121 (71%) program directors responded to the survey. Comparing a vignette describing a 60 y.o. executive with one describing a 30 y.o. ex-convict, being asked about cocaine use would be "likely" (very or somewhat likely) to occur in 41% and 95% of EDs respectively, testing for cocaine use would be "likely" to occur in 16% and 62% of EDs, yet consent for this testing would be "unlikely" (somewhat or very unlikely) to be obtained in 71% and 79% of EDs. Even after asking about cocaine use, 37% and 64% of EDs would test for it in the 60 y.o. executive and 30 y.o. ex-convict vignettes respectively.
CONCLUSION: In the EDs that train America's emergency department physicians, not all patients with ACP are asked about cocaine use, yet many are tested for cocaine use without their consent. This practice is applied differentially according to sociodemographic characteristics of patients. Physicians could avoid a potential ethical breach and possible tangible harm to patients by asking about, but not testing for cocaine use in all competant patients with ACP in the ED.

**INFLUENZA IMMUNIZATION AMONG MEDICARE BENEFICIARIES 1992–1996: HIGHER RATES BUT DISPARITIES PERSIST.** W.P. Moran[1], S. Yu[1], J. Chen[1]; [1]Wake Forest University, Winston-Salem, NC *(Tracking ID #51881)*

BACKGROUND: Annual influenza immunization reduces morbidity, mortality and acute care service utilization among high-risk groups, one of which is individuals age 65 and older.
METHODS: Data from the Medicare Current Beneficiary Surveys (1992 to1996), a national probability sample of the Medicare population, were analyzed using robust logistic regression approach with self-reported influenza immunization as the dependent variable.
RESULTS: Data were complete and analyzable for 47081 respondents: 58% female, 87% white, 38% age 75–84 and 20% age 85+, 32% reported incomes under $10,000, and 14.7% enrolled in an HMO. Likelihood of immunization steadily increased over the years from 1992 (reference), 1993 (OR = 1.07), 1994 (OR = 1.51), 1995 (OR = 1.61) and 1996 (OR = 1.89). Non-whites had lower odds of immunization OR = 0.62. Odds of reporting influenza immunization significantly increased with age (65–74 as reference) 75–84 yrs (OR = 1.44), and age >85 yrs (OR = 1.48), years of education (<9 yrs as reference), 9–12 years (OR = 1.27), >12 years (OR = 1.67), income (<$10k as reference) $10–19,999 (OR = 1.22), $20–29,999 (OR = 1.49), $30–49,999 (OR = 1.68), >$50 (OR = 1.54), any Part B coverage (OR = 1.2–1.66), or HMO enrollment (OR = 1.58) with all at $p < .0001$. The presence of most chronic illnesses (OR = 1.18 to1.59) and less than excellent health status (OR = 1.13 to 1.12) was less likely associated with the immunization. There were no statistically significant differences in likelihood of the immunization in gender, living alone, urban/rural, ADL impairment, stroke, mental illness, Parkinson's disease or hip fracture.
CONCLUSION: The nation-wide efforts dramatically increased annual influenza immunization rates in the Medicare population over the years 1992–1996. Historically underserved older adult populations with low social and economic status remained under-immunized.

**PRIMARY CARE PHYSICIAN SATISFACTION WITH TRACKING ABNORMAL RESULTS AND ATTITUDES CONCERNING CLINICAL DECISION SUPPORT SYSTEMS.** H.J. Murff[1], T.K. Gandhi[1], A.S. Karson[2], E.A. Mort[2], E.G. Poon[1], S.J. Wang[1], D.G. Fairchild[1], D.W. Bates[1]; [1]Division of General Internal Medicine, Brigham and Women's Hospital, Boston, MA; [2]General Medicine Unit, Massachusetts General Hospital, Boston, MA *(Tracking ID #50271)*

BACKGROUND: One of the most frequent causes of lawsuits in outpatients is failure to follow up abnormal results. Information systems could assist providers in abnormal test result tracking, yet little is known concerning providers attitudes toward outpatient decision support. Therefore, we surveyed primary care physicians to assess satisfaction with their current systems for abnormal results tracking, as well as their attitudes concerning clinical decision support systems (CDSS).
METHODS: We surveyed 113 primary care physicians and 103 housestaff physicians affiliated with two major academic institutions in Boston. All eligible providers utilized a single electronic medical record (EMR) that did not have result tracking or CDSS. The survey instrument included questions concerning satisfaction with their current nonelectric methods for tracking abnormal results and attitudes towards CDSS. Questions were scored on a 7 point Likert scale and dichotomized with responses greater than 4 indicating agreement or satisfaction.
RESULTS: The overall response rate was 64% (139/216). Few respondents were satisfied with their current system for managing abnormal test results (Table 1). However, a high percentage agreed that CDSS assisting with these issues would be useful. Overall, 81% (105/130) agreed that they could better comply with patient care guidelines with electronic decision support (e.g. reminders).
CONCLUSION: Most primary care provider attendings and housestaff were not satisfied with their current methods for tracking abnormal test results. Our respondents believed that CDSS's are useful and could improve their ability to tracking abnormal results and to comply with guidelines.

**Table 1: Satisfaction with Tracking Test Results and Perceived Usefulness of CDSS.**

| | Percent Satisfied | Percent Agreeing That CDSS Would Be Useful |
|---|---|---|
| Abnormal laboratory results | 30% (36/119) | 96% (114/119) |
| Abnormal radiography results | 23% (27/119) | 96% (114/119) |
| Abnormal mammogram results | 31% (37/119) | 94% (112/119) |
| Abnormal Pap smear results | 31% (37/119) | 96% (114/119) |
| Preventive care guidelines | 58% (69/119) | 91% (108/119) |