

the Scalpel

October 2012

Issue 4

TSOM

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Trinity's own chapter of the American Medical Student Association hard at work

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A surreal and chilling telling of a typical night in the hospital ward for medical practitioners

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The Cause

Feelings of hopelessness when dealing with the destructive effects of cancer in a loved one

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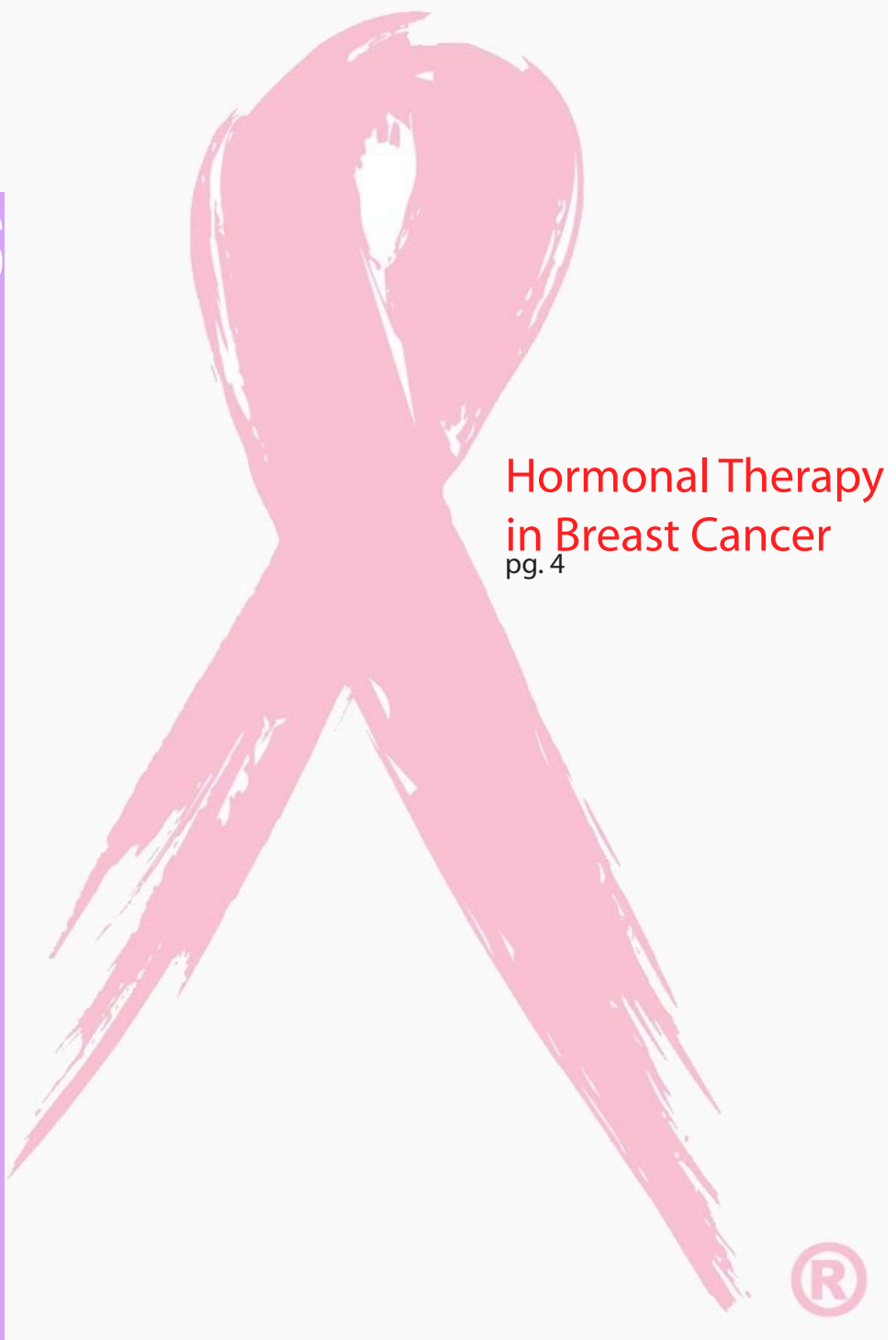
Packed Campus

An influx of new students leaves remarkable effects on the face of campus life

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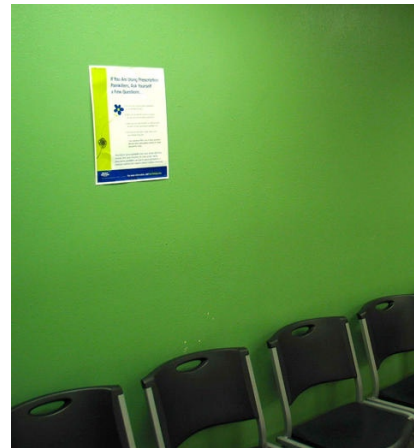
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Trinity's chapter of the American Medical Students Association has been busy the last couple months helping out on a diabetes and hypertension awareness trip with SMS in conjunction with the Society of Medicine and Surgery as well as continuing the strong tradition of giving to the St. Benedict's Children's Home...



Waiting For Doctor

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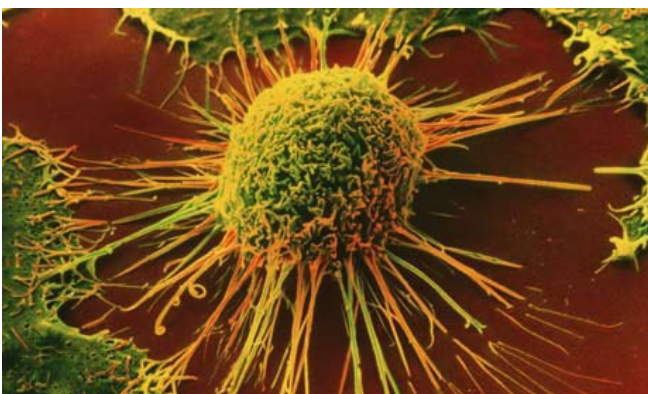


A patient is most invisible precisely where she comes to be seen. Consider the Emergency Room visit. The check-

in receptionist looks at the screen. The other patients in the waiting area look at the television or Good Housekeeping...

The Cause

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Cancer - one word, so simply defined, but unimaginably deadly. Its many forms are so complex, it would take a lifetime to fully understand. Yet, its victims have as little...

Packed Campus

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Trinity admitted a record number of students this term, and the effects are felt all over. As the returning students stare wide-eyed in amazement at the sheer number of new students, the "newbies" are adjusting well.

While this new influx of students means longer lunch lines, tighter squeezes on the buses, and less space in the library, it also means that our school is doing something right attracting a wide array of students from all over North America...

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Spotlight

"Far better is it to dare mighty things, to win glorious triumphs, even though checkered by failure... than to rank with those poor spirits who neither enjoy nor suffer much, because they live in a gray twilight that knows not victory nor defeat.."

-- Theodore Roosevelt

St. Vincent

Gamal Fitzpatrick

Vincenian Visa Changes

As of 12:01 am EDT on Wednesday 12th September 2012, Vincenians will now need an embassy issued visa in order to visit Canada. The announcement was given as part of Citizenship and Immigration Minister Jason Kenney's speech on Canada's current immigration policies. This visa requirement will also be implemented on visitors from St. Lucia, Namibia, Botswana and Swaziland as part of the Canada reforms on immigration control. Kenney stated "Criminals from these countries can legally change their names and acquire new passports. In some instances, people who were removed from Canada as security risks later returned using different passports". Kenney affirmed that the main reason for this decision was for better screening for potential security risks within the country's ports of entry. The new policy is seemingly a consequence of "unreliable travel documents" and the relative ease of passport issuance in the mentioned countries.



The policy change came after it was announced that over 3000 individuals would have their citizenship revoked due to fraudulent claims during the residency application process. It is speculated that a fraction of these individuals may be Vincenian nationals who will be returning to the country upon revocation of the residency status. Prime Minister of St. Vincent and the Grenadines, Hon. Ralph Gonsalves, seemed to believe the frequent occurrence of fraudulent applications claims for residency by Vincenian nationals was responsible for the policy change. In a press conference on the 4th of September, Gonsalves stated that it was common for Vincenians to apply for Canadian citizenship on the basis of domestic violence or "facing discrimination on racial or political grounds". Gonsalves later went on to state that it was regrettable that the Canadian government took such a tough stance on the new immigration practices with regard to visitors from St Vincent.

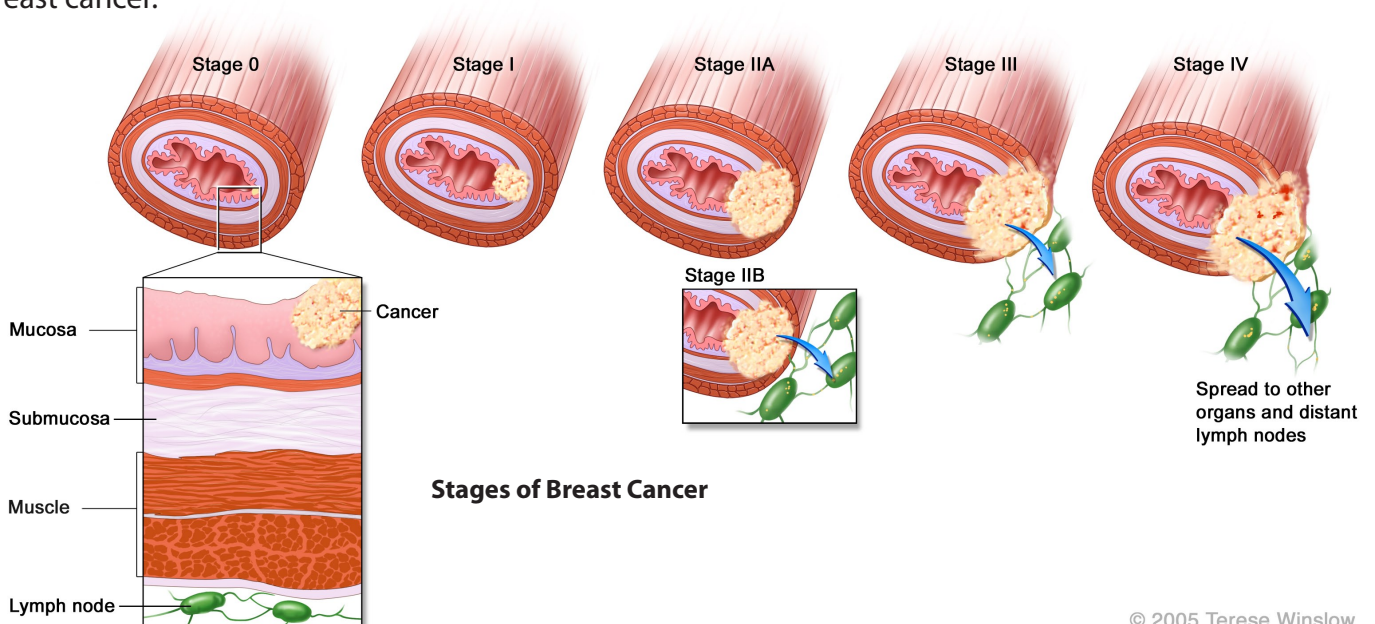
Currently Vincenians nationals are required to apply for the visa in person or by mail to the Canadian embassy located in Port Au Spain, Trinidad. The proposed costs for the visa application and processing are \$150 ECD for an individual and \$400 ECD for a family of six. Additional costs will be incurred when applicant are required to travel to Trinidad and Tobago in order to present themselves to the Canadian Visa officials there. It is mandatory for applicants meet the criteria set by the Canadian immigration department in order for the continuance of their travelling arrangements to Canada.

Hormonal Therapy in Breast Cancer

R. S. Mehta and W. E. Barlow, et al.

Endocrine therapy plays a central role in the treatment of hormone-receptor (HR)-positive metastatic breast cancer. Selective aromatase inhibitors, such as anastrozole, letrozole, and exemestane, lower the estrogen level and are used as first-line endocrine treatments of HR-positive metastatic disease, owing to their superiority over tamoxifen. Fulvestrant (Faslodex, AstraZeneca) is an analogue of estradiol that down-regulates the estrogen receptor by disrupting estrogen-receptor dimerization and accelerating degradation of the unstable fulvestrant-estrogen-receptor complex. This effect leads to reduced cross-talk between the estrogen receptor and estrogen-independent growth factor signaling, thus delaying resistance to hormone therapy. Clinically, fulvestrant at a dose of 250 mg monthly is as active as tamoxifen when used as first-line therapy for metastatic disease³ and as active as anastrozole when administered in patients who have had disease progression after receiving tamoxifen therapy.

In preclinical models, fulvestrant has been shown to have high efficacy in a low-estrogen environment. The combination of fulvestrant and an aromatase inhibitor, as compared with either agent alone, delays the development of resistance by down-regulating several signaling molecules involved in the development of resistance. We therefore conducted a phase 3, randomized trial to determine whether the combination of anastrozole and fulvestrant would be superior to anastrozole alone as first-line therapy for metastatic breast cancer.



Methods:

Eligibility

Eligible patients were postmenopausal women with HR-positive metastatic breast cancer (estrogen-receptor-positive, progesterone-receptor-positive, or both), diagnosed according to local institutional standards. Women were eligible if they had had no prior chemotherapy, hormonal therapy, or immunotherapy for metastatic disease. Neoadjuvant or adjuvant chemotherapy had to have been completed more than 12 months before enrollment. In the original protocol, women who had received prior adjuvant therapy with an aromatase inhibitor or fulvestrant were excluded, but those who had received prior adjuvant tamoxifen therapy were eligible. In an early amendment, women who had received prior adjuvant therapy with an aromatase inhibitor were also eligible if the therapy had been completed more than 12 months before enrollment. Patients were not allowed to receive concurrent chemotherapy or other hormonal therapy during the study treatment period (bisphosphonates were allowed). Women with either measurable or nonmeasurable disease were eligible. Other major eligibility criteria included no known metastases in the central nervous system and a Zubrod's performance score of 0 to 2 (with a score of 0 indicating that the patient is fully active, 1 that the patient is restricted in strenuous activity but is ambulatory, and 2 that the patient is unable to work but is ambulatory and capable of self-care). Patients with bleeding diathesis or long-term anticoagulant therapy (except

antiplatelet therapy) were ineligible. Patients with other cancers were ineligible unless the cancer had been adequately treated or had been in remission for at least 5 years. All patients provided written informed consent before enrollment.

Randomization and Treatment

Randomization was performed at a central location, with stratification according to prior receipt or no prior receipt of adjuvant tamoxifen therapy. Patients were randomly assigned, in a 1:1 ratio, to anastrozole alone (group 1) or to fulvestrant in combination with anastrozole (group 2). Patients in group 1 received 1 mg of anastrozole orally each day. Patients in group 2 received 1 mg of anastrozole orally each day, as well as an initial loading dose (500 mg) of fulvestrant administered intramuscularly on day 1, followed by 250 mg (low-dose fulvestrant) administered intramuscularly on day 14 and day 28 of the first cycle, and thereafter every 28 days. Treatment was continued until disease progression, the development of unacceptable toxic effects, a delay in treatment of 4 weeks or longer, or withdrawal of the patient from the trial. After progression, the treating physician could choose the appropriate therapy, although crossover to low-dose fulvestrant was strongly recommended for patients in group 1 after discontinuation of anastrozole, and fulvestrant was provided free of charge to encourage crossover to that agent. After a higher monthly dose of fulvestrant (500 mg) was shown to be superior to the low dose and the Food and Drug Administration approved the higher monthly dose, the protocol was

amended (on February 2, 2011) to allow patients in either group to receive the 500-mg dose after progression.

Results:

Patients

A total of 707 patients underwent randomization during the period from June 1, 2004, through July 1, 2009. After randomization, 12 patients were found to be ineligible, in most cases because there was not a definitive diagnosis of metastatic disease; in addition, 1 patient withdrew consent. Therefore, 694 patients were included in the intention-to-treat analysis.

Toxic Effects

Information on toxic effects was collected for 678 patients (332 in group 1 and 346 in group 2); information was not collected for the 6 patients who received no study treatment and was incomplete for 10 patients. Only 15 patients discontinued the study treatment early owing to toxic effects (4 in group 1 and 11 in group 2, $P=0.12$). In general, the toxic effects were mild and did not differ significantly in grade between the two groups (see Table 1 in the Supplementary Appendix, available at NEJM.org). Toxic effects of grade 3 or higher were observed in 42 patients who received anastrozole alone (12.7%) and in 51 patients who received combination therapy (14.7%) ($P=0.44$). The most common grade 3 toxic effects were musculoskeletal pain (2.8%), influenza-like symptoms (2.4%), gastrointestinal disturbances (1.5%), and hematologic effects (1.5%).

Toxic effects of grade 4 or higher

were observed in four patients who received anastrozole alone (1.2%) and in five patients who received combination therapy (1.4%) ($P=1.00$). The four observed grade 4 toxic effects among patients who received anastrozole alone were thrombosis or embolism, joint pain, thrombocytopenia, and dyspnea. Two patients receiving the combination therapy had grade 4 toxic effects (thrombosis or embolism in one patient and neutropenia or lymphopenia in one patient). In addition, there were three deaths in the group that received combination therapy: one patient, 80 years of age, died from diverticular perforation and heparin-induced thrombocytopenia with thromboembolism; one patient, 83 years of age, died from cerebrovascular ischemia after septic shock associated with worsening disease; and one patient, 73 years of age, who had a Zubrod's performance score of 2, died from a thromboembolism.

Discussion:

This trial tested the hypothesis that the combination of anastrozole and fulvestrant would delay the development of progressive disease in postmenopausal women with HR-positive breast cancer. Progression-free survival was significantly longer with the combination therapy than with anastrozole alone. The hazard ratio of 0.80 for progression or death with combination therapy was notable, especially given the fact that the group receiving anastrozole alone had a higher median progression-free survival than had been projected in the design of the trial. Both regimens were associated with

mild-to-moderate toxic effects, and although grade 3 to 5 toxic effects occurred more frequently in the combination group than in the anastrozole-alone group, the between-group difference was not significant.

Combination therapy, as compared with anastrozole alone, resulted in a significant improvement in the secondary end point of overall survival by more than 6 months (hazard ratio for death with combination therapy, 0.81). This finding suggests that the combination therapy is more effective than is the sequential use of anastrozole and fulvestrant. Although a substantial proportion of patients in the anastrozole-alone group (41%) who had disease with a good prognosis crossed over to fulvestrant (albeit low-dose fulvestrant), the overall survival for the combined cohort of patients who received anastrozole alone or anastrozole followed by fulvestrant remained inferior to the overall survival for patients who received the combination therapy. It is unclear whether the former group would have fared better if patients who crossed over to fulvestrant had received high-dose fulvestrant. The indirect data that speak to this point are inconsistent. On the one hand, high-dose fulvestrant was superior to anastrozole as first-line hormonal therapy in a phase 2 trial. On the other hand, in the Comparison of Faslodex in Recurrent or Metastatic Breast Cancer (CONFIRM) trial, high-dose fulvestrant, as compared with low-dose fulvestrant, as second-line endocrine treatment was associated with a nonsignificant median survival benefit of only 2 months.

Although the benefit with respect to median progression-free survival appears to be small, this outcome was assessed only at the 50th percentile of the survival curves (Figure 2), which did not reflect the late separation of the curves. The overall effect of the combination therapy across all time points is better summarized by the hazard ratio and the log-rank P value (the primary analysis), which were both highly significant. The median difference in overall survival was larger because the medians were assessed much later than the point of separation of the curves.

Most prior studies have failed to show the superiority of concurrently administered hormonal modulators over single agents, particularly with respect to overall survival. Indeed, in the adjuvant setting, the combination of anastrozole with tamoxifen is inferior to anastrozole alone.

Most specifically, our results contrast with the Anastrozole Monotherapy Versus Maximal Oestrogen Blockade with Anastrozole and Fulvestrant Combination Therapy (FACT) trial, in which the same combination of anastrozole and fulvestrant was not superior to anastrozole alone. However, the FACT trial included fewer patients (514 patients) than did the current trial, and because that trial included patients with locally recurrent disease, which is associated with fewer failure events, a larger study would have been required to detect a difference between the groups. Moreover, the FACT trial also included patients in whom the disease had progressed while they were receiving adjuvant chemotherapy, and all patients were in relapse

after treatment of local disease. In contrast, 39% of the patients enrolled in our study had disease that was metastatic at presentation. Furthermore, in the FACT trial, in the combination-therapy group, 70% of the patients had received prior antiestrogen therapy and 32% were treated during or up to 12 months after stopping adjuvant endocrine therapy.

The improvement in overall survival that was observed in our study has not been seen in other trials of first-line hormonal therapy for HR-positive metastatic breast cancer. Specifically, in the trials comparing aromatase-inhibitor therapy with tamoxifen therapy, the benefit from aromatase inhibitors with respect to progression-free survival failed to translate into a benefit with respect to overall survival, a finding that was attributed to the crossover of some patients in the tamoxifen group to an aromatase inhibitor. In contrast, the results of our study are not confounded by crossover to combination therapy, and the benefit with respect to overall survival closely mirrored the benefit with respect to progression-free survival (hazard ratio, 0.81 and 0.80, respectively). A study comparing low-dose fulvestrant with tamoxifen did not show a between-group difference in progression-free survival or overall survival, suggesting that the combination therapy, rather than fulvestrant therapy alone, mediated the improvement in our study.

Although the percentage of patients who had metastatic disease at presentation in this study may seem high (almost 40%), the population in our study was

selected to be at sufficiently low risk to forego chemotherapy. Moreover, a previous study involving patients with metastatic breast cancer showed that although only 18% of the patients had metastatic disease at presentation, this percentage increased with age and hormone-receptor positivity.

Taken together, the results of our study suggest that trials of adjuvant therapy should be performed in which the combination of an aromatase inhibitor and high-dose fulvestrant is compared with an aromatase inhibitor alone or high-dose fulvestrant alone, in patients with estrogen-receptor-positive tumors for whom chemotherapy is not necessary.

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Disclosure forms provided by the authors are available with the full text and source bibliography of this article at NEJM.org.

SOURCE INFORMATION

From the University of California Irvine Medical Center, Chao Family Comprehensive Cancer Center, Orange (R.S.M.); SWOG Statistical Center (W.E.B., D.L.L.) and Puget Sound Cancer Consortium/Seattle Cancer Care Alliance (J.R.G.) — both in Seattle; Loyola University Chicago Stritch School of Medicine, Maywood, IL (K.S.A.); London Health Sciences Center/National Cancer Institute of Canada Clinical Trials Group, London, ON, Canada (T.A.V.); Wichita Community Clinical Oncology Program (CCOP), Wichita, KS (S.R.D.); Northwest CCOP/Northwest Permanente, Portland, OR (N.R.T.); University of Michigan, Ann Arbor (D.F.H.); University of Arizona/Arizona Cancer Center, Tucson (R.B.L.); and University of Texas M.D. Anderson Cancer Center, Houston (G.N.H.).

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Trinity's chapter of the American Medical Students Association has been busy the last couple months helping out on a diabetes and hypertension awareness trip with SMS in conjunction with the Society of Medicine and Surgery as well as continuing the strong tradition of giving to the St. Benedict's Children's Home:

AMSA has been collecting reusable items from the students in order to donate them to the children at St. Benedict's for over three years now. Collections are handled by anonymous donations placed in the barrel located in the room adjacent to the library and are kept to unused school supplies, clothing, or non-perishable food items. The program is always a hit with the locals, and this year was no different. They were able to donate slippers, bathrobes, towels, bedsheets, paintbrushes, socks, shoes, belts, bags, caps, and many other items. Sister Nyra Anne of the children's home expressed much gratitude for the contributions.

The diabetes and hypertension trip took place in July. The goal was not only to record high blood glucose levels for research and follow up, but also to provide the residents of the Grenadine islands with education on how to detect and prevent diabetes. This two day trip was an incredible experience not only for the AMSA and SMS students but also for the Vincentians they

were able to assist.

First stop:

Mulzac Square - Saturday, July 21

After an early rise and a sunny sail down to Union island, the teams set up stations by the bright and colourful Hugh Mulzac Square. After local residents had their blood pressure levels checked at the SMS station, Union Island residents made way over to have their blood glucose levels checked. Some residents came with smiles as they saw the station and asked, "can you check my sugar". After thanking them for checking in with their health, the teams reassured them that the pin prick on their fingers was nothing to worry about and that it would cause no real pain. Men and women who had stopped by during a lunch break as well as those who had heard we were there came by to participate.

Gily Raz, a Trinity student who participated with AMSA and assisted SMS recalls that there was "one man in particular [who] stood around the Medical Station for some time, and watched. When [she] approached him, he said he had never been seen by a doctor before. At that moment, [she] realized the impact of [their] outreach - [they] were not only raising awareness for diabetes and hypertension, but connecting people to proper care."

Providing Care:

Mayreau - Sunday, July 22

The students woke up knowing they had a lot more work to do, and that timing was important to ensure they were able to reach out to as many Vincentians (and visitors) as possible. Luckily they had set sail for Mayreau the night before and were able to wake up bright and early to set up at the Station Hill post office and Medical Clinic. They worked with the main nurse who manages and treats local residents, and they had the opportunity to work with men and women of all ages who not only wanted their sugar and pressure checked, but also had other general health questions. The island was normally visited by a doctor once a month, and patients usually had to go to another island or wait for the doctor to arrive. In more urgent cases, the nurse indicated that she would often do telephone conferences with the doctor to ensure care and treatment for the patient.

Students were inspired to see Dr. Coey treat an elderly gentleman at one point. The man had come to have his blood sugar checked but did not appear well. As the volunteers comforted the man, Dr. Coey took the man's history and checked his vitals before referring him to a physician on a nearby island with some delicate counseling.

Final Stop:

Canouan - Sunday, July 22

The students arrived in Canouan a bit later than anticipated, and

Community Aid

most people were already at home. Committed to the goal of reaching out to the residents of Canouan, they set up their final station at a friendly beach resort. The turnout was better than expected as employees of the resort, friends of employees, and even a few visitors were eager to have their sugar levels tested. As AMSA participant, Bill Henderson pointed out, "The best part of the trip was knowing that we were actually helping people. You get stuck in the books here and lose the perspective that medicine is about helping other people not memorizing lists of proteins all day..."

After a lot of sun, sailing, visiting beautiful islands, and more importantly providing medical care and education to the best of their abilities, the students returned home from a successful trip.

Interestingly, blood sugar levels on all the islands seemed to be within normal ranges. One local resident attributed it to the simple diet and simple means of living they were accustomed to. Also to note, is that there are no fast food chains, or as much pollution (from cars, waste, etc.), which may contribute to the seemingly healthy patients seen.

AMSA would like to thank Simon Carey and Sunsail for their generous contributions to this worthy and amazing opportunity for

Trinity Students and Vincentians. We would also like to express our heartfelt thanks and gratitude to Dr. Coey for his guidance and patience, as the presiding medical doctor and on the trip.



Waiting For Doctor



A patient is most invisible precisely where she comes to be seen. Consider the Emergency Room visit. The check-in receptionist looks at the screen. The other patients in the waiting area look at the television or Good Housekeeping. The triage nurse looks at her watch, two fingers on the wrist, at once paying close attention and making the classic gesture of impatience. The physician's assistant looks at the vitals. A few questions, just to aim the test at the right fourth: head, torso (upper half), torso (lower half), or limb(s). Or more than one of the above, if mention is made of a slip on the ice or a fender bender.

Your name goes on the Board at the front of the Emergency Room. The Board is covered with names. Most of these patients the Emergency Department

physician has not actually seen. His time, always in short supply, is best spent with people too far gone to make eye contact: the poet (unconscious after a drinking binge), the lover (unconscious after a run-in with an ex-con ex-boyfriend), and the lunatic (unconscious after yet another fistful of goodbye-world Ambien). Or the car-versus-pedestrian head bleeds, the unhelmeted motorcyclists who have 'kissed the pavement,' the stroked-out elderly found after who knows how many hours of soaking in their own urine. The patients who really need seeing are usually unaware they are being seen.

Efficiency is crucial on a busy night, and medicine's single most easily conserved resource is face time. Even in the sleepy outpatient offices of family prac-

tioners, the patient encounter lasts roughly the duration of a haircut. In the Emergency Room, where stranger treats stranger and chitchat is not expected, a physician can bring the face time as close to zero as possible. The nurse practitioner, who takes the history, looks down at his or her clipboard, making notes. A good presentation will exclude whatever differentiates this patient from the idealized disease. Every barfight has a back story, and every adolescent suicide attempt has a small novel leading up to it, but complex narratives do not help suture a cut or pump a stomach of a Tylenol overdose. By the way, the nurse practitioner, not the doctor, will be suturing that cut – eyes cast down at the curved needle and thick black thread.

But your complaint is not so

Waiting For Doctor

clear-cut. Fever and pain in your belly. Where is the pain? All over, or maybe it moves around, or maybe it's more in your flank or back: Abdominal pain terrifies doctors because abdominal pain could be anything (or nothing at all). That is why the shrewd drug addicts, seeking their opiates, know that you plead dull long-standing back pain in the outpatient office and sharp new belly pain in the Emergency Room. (The exact combination is crucial: If you plead sharp new belly pain in the outpatient office, you risk being sent to the Emergency Room, and vice versa.) The pain inside you is not something that the naked eye would help diagnose anyway.

What you need is a trip to the Radiology department. The transporter stares above the elevator door until the B lights up. The scan diffracts a singular, three-dimensional I into several, two-dimensional images. The patient laid on a scanner table is more than just bare. A scan knows a body as its architect and foreman know it: Crossbeam and joint, vent ducts and plumbing, the scaffold inside the house. Nakedness is just the house before the paint. Those sketches in Andreas Vesalius, the skin banana-peeled off the latissimus dorsi – that's just the house before the siding. A scan sees the entire circumference and everything inside that circumference. The images are called cuts or slices, but the surgeon has only an incision's nar-

row aperture, or at best the pinhole of laparoscopy. The surgeon peeks. The scan sees through.

So who sees the scan? It's past midnight. Those pixie-dust pixels are packed down into a packet of information. And that's when you – Med. Rec. No. 003249352, DOB 2/4/61 – travel. To Australia or New Zealand, maybe. Or Switzerland, or Israel. Somewhere there's daylight, not that a radiological sweatshop-worker ever sees daylight. These middle-of-the-night studies are sent to chronologically offset countries, where hospitals get their reads on the cheap. Teleradiology is not always a case of a hospital saving itself money, though. Many hospitals contract with a group of radiologists, who read the studies performed on the hospital's machines. This radiology group, in turn, contracts with the teleradiology company – surely the only instance of skilled labourers outsourcing their own work overseas.

So the Board-certified professional, who would be reading your scan during the daylight hours, is currently in his bed, perhaps with a sleep mask over his eyes. Somewhere far, far away, in a dark dungeon, in another time zone, a rushed radiologist double-clicks your name. The preliminary rigmarole of who you are and what exam this is starts coming out of his mouth before the screen's pale rectangles ghost his glasses.

The doctor will see you now. A clock icon pops up and begins ticking in the corner of the screen. He's built for speed. More studies interpreted means more money earned. Radiologist black humor calls this system 'eat-what-you-kill'. Above all, do no harm – but 'kill' as many as you can. He sees a single horn sticking off the bent slug that is your colon. It's too thick, it's blurry: Appendicitis. Your surgical emergency makes him feel relieved, maybe even a little happy. He's found the answer. Every other organ gets its own roll-through now. One must be methodical. It's not the appendicitis he finds, it's the cancer he misses that will get him sued. He's in a cubicle in Zurich, true, but litigation is imperialist; it will cross oceans and borders in search of profit. At some level, though, each roll-through is perfunctory, impatient. There are other cases to be read. Can't waste time.

The doctor whose name is on the order – the Emergency Room doctor, who never actually saw you – gets the phone call just as he's walking out of the trauma bay. Mrs. Who? Um, let me see. (He's checking a board at the front: of course, bed 17.) Go ahead. Really? Any signs of perforation? Okay. Thanks for your help.

The next step is putting in a page to the surgeon on call. The last step is visiting the room. He introduces himself and delivers

Waiting For Doctor

the diagnosis. At this point, if he gets curious, he may press on the belly where it hurts, or press on the belly on the opposite side and withdraw his hand quickly and see if that hurts, and maybe even have you flex your right hip and rotate it internally – this is the obturator sign, which he read about in medical school. And he may think: Yup, classic. Or he may think: Who would have guessed. Barely tender at all.

He's not to blame. He's been surprised enough times by the scan; he knows better than to trust the body. The laying-on of hands is not faith healing, but it is faith diagnosis. Because histories are vague, because pain speaks in riddles (right shoulder can mean right shoulder, but it can also mean gallbladder), because diseases are locked-room mysteries. Because some seek pain relief and some seek pain medication. Because he will never find if he never looks, and he can look, really look, no other way but this.

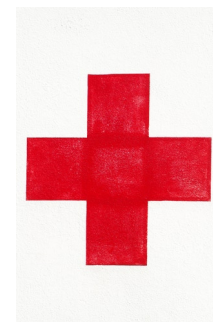
The surgeon, having hung up the phone, sits up in bed at last, groggy and annoyed. He can foresee the coming operation from the diagnosis alone. He will probably do the operation laparoscopically, which involves puncturing the abdomen with tubes and distending it with air. One tube will be a sheath for a mechanical scalpel or a clamp, whichever he might need. Another tube will have a small camera and light at the end of it. A

drape will cover everything but the patient's sterilized abdomen. The surgeon, in order to see what he is doing, will stare away from the patient – at the real time screen connected to his camera. He will take some photographs of his own for documentation. On the other side of the drape, the anesthesiologist – or, more likely, a nurse anesthetist – will stand very close to the patient's face. But the patient will be unconscious, and the nurse anesthetist will be looking at the monitors to his or her left, the ones that show heart rate, respiration rate, and oxygen saturation. If the patient starts moving at all during the procedure, the surgeon will look at the nurse anesthetist; the nurse anesthetist will nod and push the plunger on a syringe of milky-looking paralytic or opiate. Then the nurse anesthetist will look at the surgeon, who will nod and look at his screens again. The two professionals aren't really looking at each other, either. Their eyes meet through fanlike plastic eye shields and glasses, while their noses and mouths are covered with sterile masks.

2.40 a.m., by the way, was the worst time your surgeon could get called in. He hasn't slept much, and by the time he gets into the hospital and takes out your appendix, he will have an hour and a half before he has to round on his in-house patients. It isn't enough time to drive back home and get some sleep, and in any case he has just done the

surgery on two cups of black coffee. The doctor's lounge is a limbo between night and day. The morning's danishes and muffins haven't been delivered yet. A glazed half-donut from yesterday's spread, one edge flecked with a bygone neighbor's sprinkles, would be as stiff as a baguette. Saltines will have to suffice. All he can do is answer emails and look out resentfully as the window brightens. And get another coffee. Some time later, on his way to the floors, he strolls past your bed in the recovery bay. You are as morphine-groggy as he is caffeine-wired. You do not recognize him; he was scrubbing in while you were going under. He doesn't recognize you, either. He knows you are the right person because he sees his name on your chart. In a way, it is a first encounter.

<http://www.google.com/url?sa=t&rct=j&q=&e&src=s&source=web&cd=12&cad=rja&ved=0CII BEBYwCw&url=http%3A%2F%2Fwww.granta.com%2FNew-Writing%2FThe-Doctor-Will-See-You-Now&ei=PCB6UOrtMsW60AH7n4C4Cg&usq=AFQjCNEREQ6sQ5xBmW1jUtx2yzNxAg0feg>



cancer |'kansur|

noun

The disease caused by an uncontrolled division of abnormal cells in a part of the body: *he's got cancer* | *smoking is the major cause of lung cancer.*

A malignant growth or tumor resulting from such a division of cells: *most skin cancers are curable.*

One word, so simply defined, but unimaginably deadly. Its many forms are so complex, it would take a lifetime to fully understand. Yet, its victims have as little as two months to understand what will kill them. Many never do. They will die having heard only a list of terms that somehow explain the disease that consumes them. We do not attempt to teach people a new language while being shot at, but that is exactly what we are asking many of these patients to do.

Worst still is this model completely leaves out the family. How many mothers stare at the wall night after night trying to find some small thing they could do to save their child? How many fathers weep over their complete helplessness to help their daughters? When their child fell, they were there with a kiss and a band aid. When their child needed help with their homework, they were there with a pencil and a calculator. When their teenager had trouble with the boys, they were there with a bat and a bodybag. Now their loved

one has cancer, and they have no recourse, no plan, no hope. Their lack of knowledge leaves the door open for doubt and fear." Is there some answer I am missing here? Should I take her to the doctor for this? Is there a better way? If I have done things different, could I have saved her?" When we have no one else to blame, we blame ourselves. Cancer not only kills our loved ones, it takes away our power to protect them. You can do all the right things, and cancer can still take them away.

2 months ago, the daughter of a friend was diagnosed with cancer. She died 2 weeks ago. The day before she died, I met her. I did not know her or her family. I did not know anything about the situation. I just happened to be in the car when my friend went to visit. The house that had watched over them all had become a funeral parlor. Visitors paying their last respects were scattered throughout the estate. They spoke of the good memories they had of her, the silly stories, the embarrassing ones, and the ones they promised never to tell. As each group talked, the same phrase was said in every group, "Did we do the right thing? Could we have done more?" My spirits fell each time I heard this, but the statement that utterly ripped my heart out was uttered by the victim's mother. "This is my fault." I looked at her in silent horror as I realized that she truly believed that. From

what little I had heard of the situation, everything had been done as well as it could have been. The cancer had just been too strong. How could anyone with knowledge possibly...? And then, I stopped myself. I have a degree in biological sciences that took me 4 and a half years to earn. A year of that was spent learning to speak medicine. This poor woman had lived her entire life never needing to learn anything of the sort. She was scared, unprepared, and lost in a sea of doctorese. No one had taken the time to explain the situation to her in a way that she could understand. What she had been told only made her more afraid. HEPATOCARCINOMA, RENAL FAILURE, LYMPHATIC METASTASIS, these terms only served to terrify her all the more. All she knew was her daughter was dying.

So I did the only thing I could do. I looked her straight in the eye and told her that she had done everything that she possibly could. I then spent the next hour explaining step by step everything that had happened. At several points, she stopped me in alarm when I said a word that frightened her. Yet, when I explained what the word meant, she relaxed, her fear abated. Soon, the core members of the family sat around me in a semi circle asking me to explain what they had been told. When I was done, I had not saved their daughter. I had not bought

The Cause

them any more time, But, I had taken away the shadows and left plain the beast before them. For the first time, they knew that they had had made the right decisions for their loved one. Their doubt was gone.

When I went home that night, I stared at the wall thinking to myself, "What If I had not been there? How long would it have taken for someone to explain it to them? What if no one ever did?" I did not sleep well that night. I kept having flash backs of the phone call I received.

I was sitting with my friends playing Dungeons and Dragons. We were laughing, singing, and making jokes that only the deepest nerds would get.

Then, my phone rang.

My mother's voice flowed from the receiver.

"I have cancer"

I guess my face changed, because the laughter in the room abruptly stopped. It was if my world had come to an immediate halt. Suddenly, nothing mattered: school, the game, jokes. What good were these things now?

I was helpless.

I could do nothing to help my mother.

FEAR REIGNED

It did not just rule me. That phone call affected the lives of everyone in that room. Now they had to stop their lives to make sure that I was okay.

Their lives stopped because my mom had cancer

They had never met my mother; they only knew me. Yet, through me, cancer had touched them. Its like 6 degrees of Kevin Bacon, except no one gets to dance.

Cancer affects everyone, but we only treat the disease. We pinpoint it, shoot lasers at it, bombard it with chemical weapons, cut it out with pointed stick, and hope when we are done that the patient has survived. In other words, we take a human, treat it like a cadaver and then hope that it still breathes.

How can this be okay?

There was an experiment run on the effects of human contact on a newborn child. One group got tender loving care from a nurse. There were held, talked to, kissed, and rocked to sleep. The other group got clinical care. They were fed, changed, and thats it.

Every single child in the clinical group died.

If it doesn't work for infants, how can we expect it to work for adults?

We must instead treat cancer as we treat depression. We don't just give them medication. We sit them down and we have them talk about their problems, and here's the key, we listen to them. Oh, psychiatrists rarely have the answer, but the simple act of them listening makes us feel that our problems are real and important. Our imagined fears become small, defined, and manageable. Once we have set the boundaries on a problem, we can work to fix it.

That is what I did for that family.

That is what I will do for my patients.

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Packed Campus

Trinity admitted a record number of students this term, and the effects are felt all over. As the returning students stare wide-eyed in amazement at the sheer number of new students, the “newbies” are adjusting well.

While this new influx of students means longer lunch lines, tighter squeezes on the buses, and less space in the library, it also means that our school is doing something right attracting a wide array of students from all over North America.

Just ask term 2 student Garrett Mockler who states, “Trinity takes as much of an investment in you as you do in them. The faculty wants you to succeed and will do whatever it takes to get there. Where else can you go to get great training with caring faculty and small class sizes, and have a beautiful island with extremely helpful locals?”

This sentiment reflects the views of newcomer Dustun Field who was informed that it does not matter where you go to medical school because for the first two years you will be chained to your desk. As clinical rotations started and classes continued, he realized that even with the new students, the professors still know students on a first name basis,

Aside from lectures, though, campus can be seen as a bustling community of many student organizations and activities

ranging from sports and fitness to culinary arts and religious groups. Organizations like Society of Medicine and Surgery, American Medical Student Association, the Research Committee, Caribbean Students’ Association, and the Scalpel have seen an increase in membership and activity.

These activities allow students to keep a healthy balance of work and play when stress can become a serious issue. Just ask term 3 students Chris DaSilva, who was once caught dancing on a chair in the library (a new studying tactic?) and Franke Joseph, who once forgot how to speak the day before unified exams.

As the juggling act that is being a medical student continues, it is good to see that more and more students are around. After all, misery loves company, doesn’t it?



TRINITY
SCHOOL OF MEDICINE



Caribbean Exposé

The following Article appeared in the Thursday, September 27th, 2012 issue of the Vincentian, the national newspaper of St. Vincent and the Grenadines:

LAST SATURDAY, the Caribbean Student Association (CSA) of the Trinity School of Medicine staged CaribbeanExposé event, its first major undertaking.

Staged on the grounds of the College’s campus at Ratho Mill, the event was intended to introduce new international students to some of the best aspects of Caribbean culture: food, dance, music and more.

It also was an occasion for students to view and experience the products and services of some local businesses within St Vincent and the Grenadines.

Following the Invocation by Annicia Johnson and Andrew DaSilva, President of the Association, Veronique Walker, welcomed all to the event.

The Cultural explosion began with a Flag Parade, which was followed by modelling of the national dresses of the Bahamas and SVG.

There was a recital by Veronique Walker of St. Clair ‘Jimmy’ Prince’s ‘Barrel Quarrel’, followed by another modeling segment, this time featuring apparel of African inspired designs.



Left: First terms student Adam De La Torre models an African inspired ensemble.



Right: CSA President Veronique Walker recites a Vincenian poem on the woes of barrel shipments.

The Potential Steel Orchestra, a staple in our national panorama competition, was present to fill the Ratho Mill Campus Grounds with beautiful pan music featuring their now accustomed wide repertoire.

The Arabesque Dance Group stepped in with one of their creative dance routines after which students took to displaying costumes reflecting the ingenuity of Vincy Mas – The Hottest Carnival in the Caribbean.

Away from the stage, patrons took in displays of Vincentian cuisine and craft, the latter including the works of well known craftsman and drummer, Nzimbu.

To add to the excitement, there were raffles, a Caribbean trivia questions interlude and Digicel giveaways.

Formed to “provide a meeting ground for Caribbean students to discuss concerns that affect their academic future and to promote integration between Caribbean and non-Caribbean students” at the school, the CSA is one of the newest clubs at the Trinity School of Medicine. The Caribbean Exposé event was deemed to have fulfilled its objectives.

Review

answers on pg. 19

1. Immunology

A newborn child is exposed to *Streptococcus agalactiae* and subsequently develops meningitis. Which of the following could have contributed to this child's bacterial infection?

- (A) A defect in DNA repair enzymes with associated IgA deficiency
- (B) An X-linked recessive defect in a tyrosine kinase gene
- (C) Improper development of the thymus and parathyroid glands
- (D) Improper transfer of IgG from the mother to the fetus
- (E) Improper transfer of IgM from the mother to the fetus

2. Physiology

A 19-year-old woman with a severe gastrointestinal infection presents to the emergency department with a 5-day history of vomiting and diarrhea. Serum chemistry tests show:

Na⁺: 138 mEq/L
K⁺: 3.0 mEq/L
Cl⁻: 88 mEq/L
HCO₃⁻: 21 mEq/L;
BUN: 10 mg/dL
Creatinine: 0.8 mg/dL
Glucose: 101 mg/dL

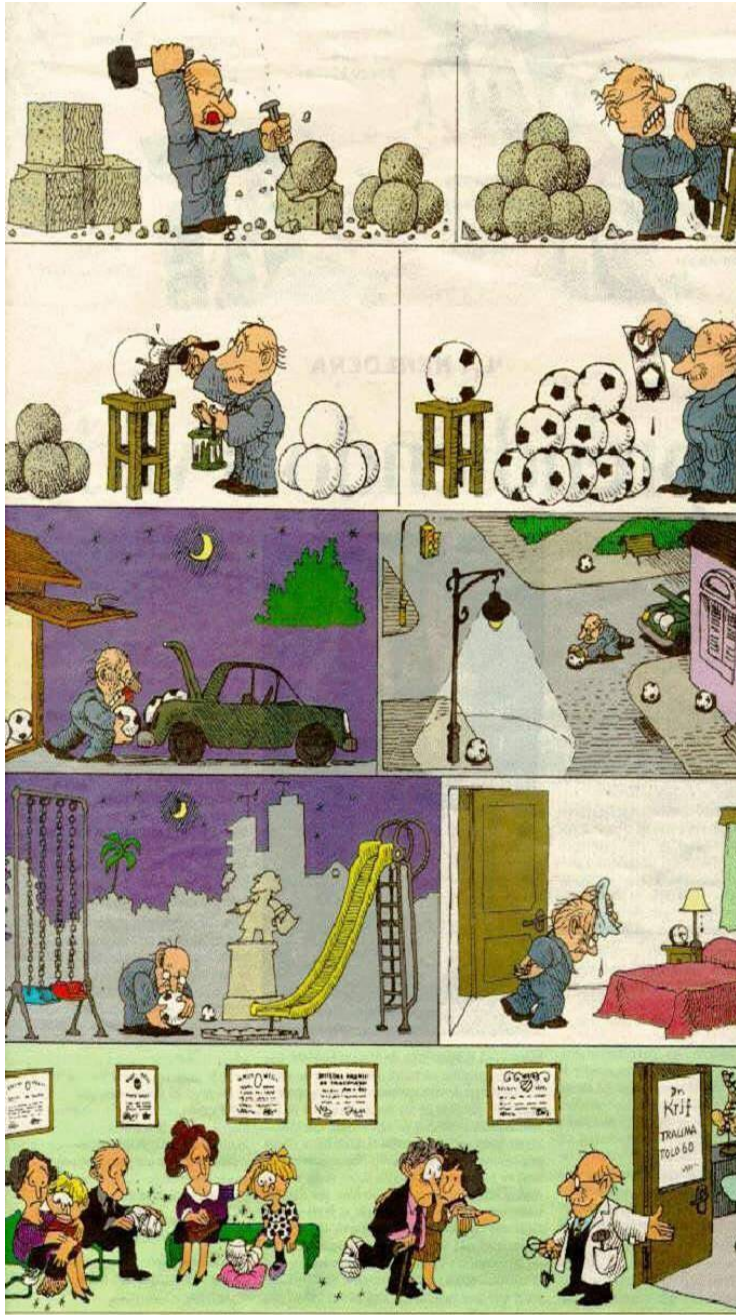
Arterial blood gas analyses shows a pH of 7.38, partial arterial carbon dioxide pressure of 37 mm Hg, partial arterial oxygen pressure of 82 mm Hg, and an oxygen saturation of 96% on room air. Which of the following statements is most accurate regarding this patient's acid-base status?

- (A) She has a metabolic acidosis
- (B) She has a mixed metabolic alkalosis and metabolic acidosis
- (C) She has a mixed respiratory alkalosis and respiratory acidosis
- (D) She has no acid-base disturbances
- (E) She has a respiratory alkalosis

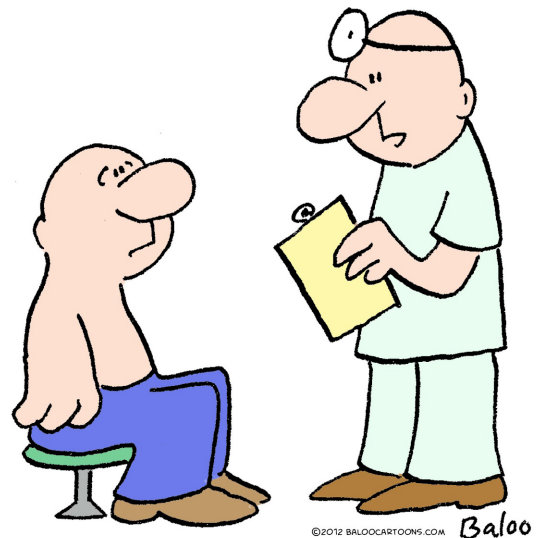
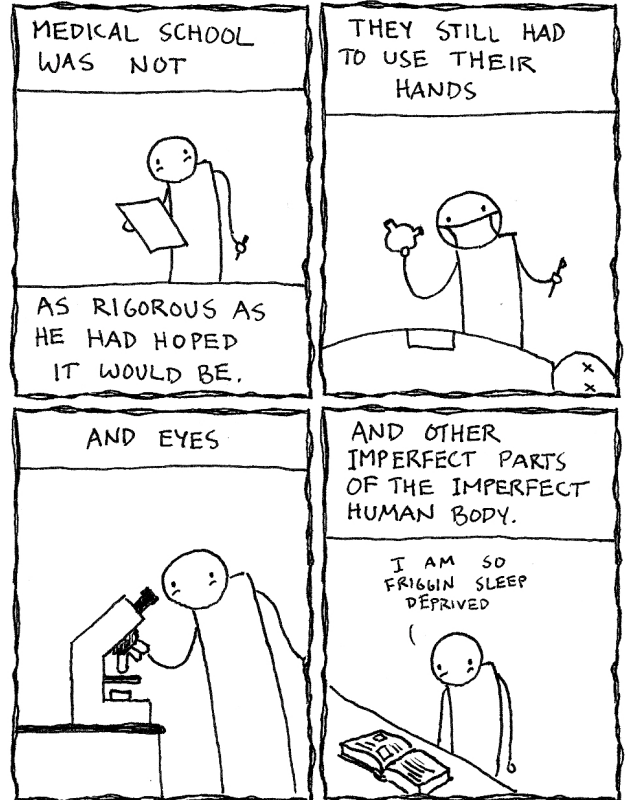
3. Biochemistry

Phosphatidylcholine is a major component of red blood cell membranes, myelin, surfactant, and cholesterol. Phosphatidylcholine is synthesized through phosphorylation of choline obtained from the diet or with reused choline derived from phospholipid turnover. De novo synthesis requires an addition of three methyl groups, transferred from an amino acid. Without the turnover component, deficiency in which amino acid would make dietary choline essential for phosphatidylcholine synthesis?

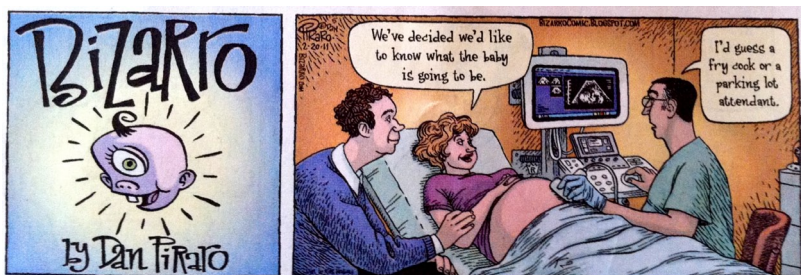
- (A) Asparagine
- (B) Histidine
- (C) Methionine
- (D) Threonine
- (E) Valine



The Narrator Always Wins - #10



"I'll give it to you straight — This disease is almost impossible to pronounce."



1. Immunology

The correct answer is D. Circulating IgG that is passed from the mother to the newborn through the placenta protects the newborn from many microorganisms for the first 6 months of life. Thus, improper transfer of IgG from the mother to the fetus can leave the newborn susceptible to infections. While IgA is found in breast milk, a neonate will have access only to antenatal antibodies, and IgG is the only antibody isotype that can cross the placenta.

Answer A is incorrect. Ataxia-telangiectasia is caused by a defect in DNA repair enzymes with associated IgA deficiency. This usually presents with cerebellar problems (ataxia) and spider angiomas (telangiectasia). It would not cause a neonate to be immune-compromised, because for the first 6 months of life the infant relies on IgG from the mother.

Answer B is incorrect. An X-linked recessive defect in a tyrosine kinase gene is seen in Bruton's agammaglobulinemia. This is associated with low levels of all classes of immunoglobulins. However, with Bruton's agammaglobulinemia, bacterial infections tend to occur after 6 months of age, when levels of maternal IgG antibody start to decline to levels insufficient to provide host defense.

Answer C is incorrect. Improper development of the thymus and parathyroid glands is seen in thymic aplasia (DiGeorge's syndrome). This leads to recurrent viral and fungal infections due to a T lymphocyte deficiency. It would not have any effect on susceptibility to bacterial infections.

Answer E is incorrect. The only antibody isotype that can cross the placenta is IgG. Therefore, IgM would not play a role in an infant's immunity until an infant can produce it themselves, at the age of 6 months.

2. Physiology

The correct answer is B. While this patient's pH, bicarbonate, and carbon dioxide levels are all very close to normal, it is always important to look more closely before concluding that there is no disorder. Vomiting is a common cause of a metabolic alkalosis, while diarrhea is a common cause of non-anion-gap metabolic acidosis. The patient has had gastrointestinal symptoms that have led to acute dehydration, which indicates that these symptoms are probably quite severe. It is also important to look at the serum chemistry. One would expect a hypokalemic hypochloremic metabolic alkalosis from vomiting, but only the electrolyte deficiencies are present. The equalized pH suggests that the patient is losing an equal amount of acid through vomiting as she is base through diarrhea. Therefore, it is more likely that she has a mixed acid-base disorder than no electrolyte imbalances at all.

Answer A is incorrect. Non-anion-gap metabolic acidosis is the presence of a low pH with a low plasma bicarbonate level and without an elevated anion gap. It is characterized by a compensatory retention of the other main body anions, which results in hyperchloremia. The cause is generally diarrhea and renal tubular acidosis.

Answer C is incorrect. While a mixed respiratory disorder could lead to this electrolyte profile, the patient has no respiratory pathology. Therefore, it is more likely that her acid-base status is being determined by a metabolic process.

Answer D is incorrect. Although this patient's pH, bicarbonate, and carbon dioxide levels are close to normal, the gastrointestinal symptoms (vomiting, diarrhea) suggest that she has a mixed acid-base disorder than no electrolyte imbalances at all.

Answer E is incorrect. Respiratory alkalosis can be caused only by an increase in ventilation leading to excessive loss of carbon dioxide, which is balanced by an increased excretion of bicarbonate. Hence, a high pH and low carbon dioxide and bicarbonate levels indicate respiratory alkalosis.

3. Biochemistry

The correct answer is C. The key to answering this question correctly is an understanding that phosphatidylcholine is formed by donation of methyl groups. Methionine is the only amino acid listed that can donate methyl groups. Its activated form, S-adenosyl-L-methionine, is a very common methyl group donor.

Answer A is incorrect. Asparagine is an essential amino acid with a negative charge. It can serve as a hydrogen ion recipient.

Answer B is incorrect. Histidine is an essential amino acid with a positive charge. It can serve as a hydrogen ion donor.

Answer D is incorrect. Threonine is an essential amino acid with an uncharged polar side chain. It contains a hydroxy group that can serve as a hydrogen ion donor or recipient.

Answer E is incorrect. Valine is an essential amino acid with a hydrocarbon side chain; however, it is not a methyl group donor.



Bulletin



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