

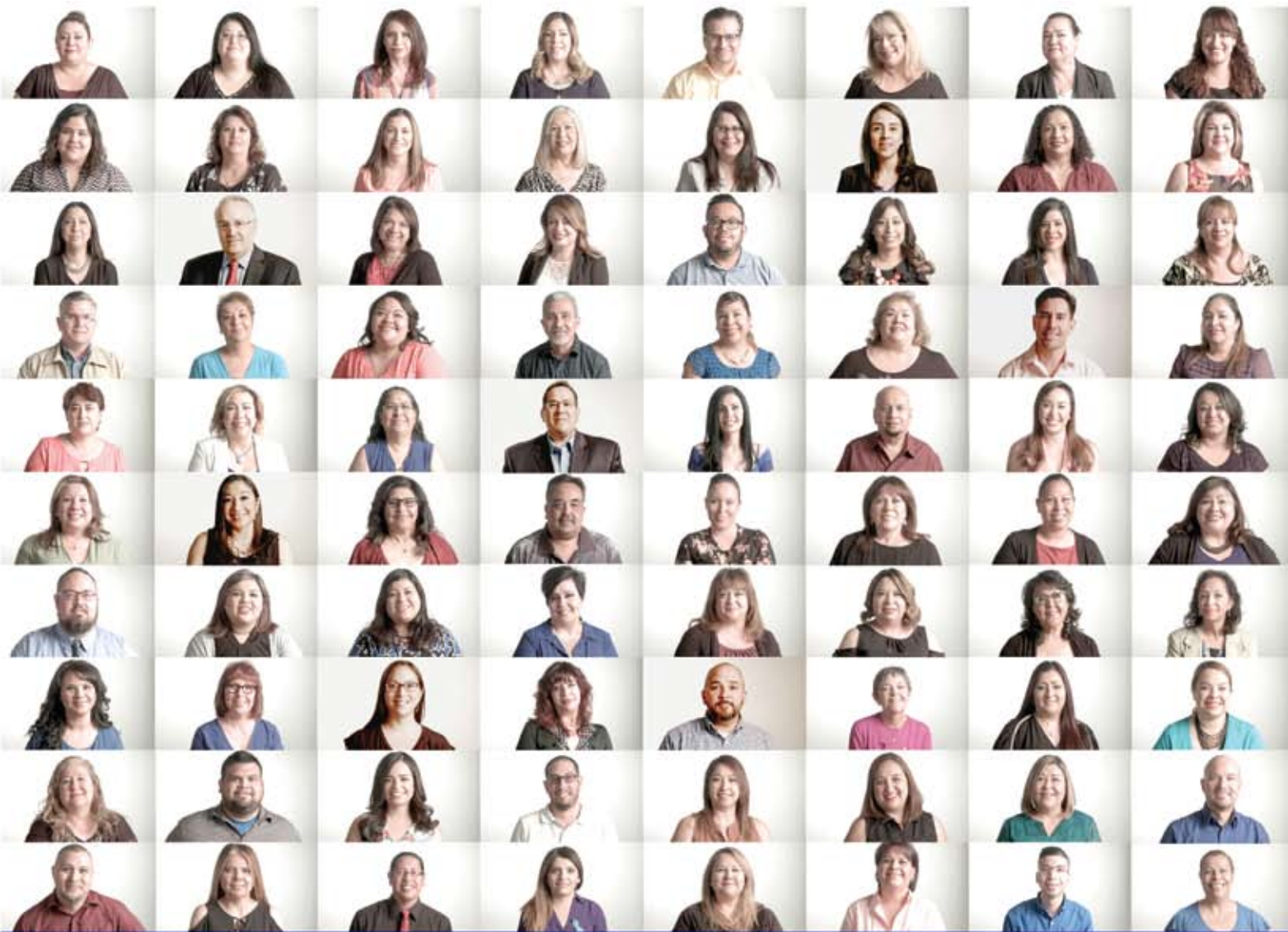


# *The El Paso* Physician

Volume 40 Number 4

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“to advance the art and science of medicine,  
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## President's Comment

Gilbert A. Handal, MD

President, El Paso County Medical Society



# PC

PRESIDENT COMMENT

*E.P.C.M.S.*

The 2017 TMA session has once again proven to be successful in protecting, physicians the foundation of our profession, and our patients. An issue that in itself should be a call to every physician becoming a member of the Society as not to do so would be really navigating at the expense of those that sacrifice time and resources to work on this behalf.

This year has also been filled with uncertainties and concerns. A growing concern is the degrading of our profession through the imposed bureaucratic measures with no evidence for positive impact on the system or the patients care as well as the application of "shift work" scheduling for physicians and particularly for residents. From my perspective this has lessened the personal responsibilities of physicians to the patient and has hampered the flexibility needed to ensure new physicians and residents establish health habits to ensure personal balance but also preserves the Patient-Physician trust and relationship as well as the growth in their profession.

For the last years it is reported that about 400 physicians have commit suicide each year; myriad of reasons exists for this tragedy; it is largely due to expectations not met leading to burnout, depression, and anxiety. Many of us have watched also as our colleagues have shuttered their practices or retired early due to these stressors. Leadership has attempted to place a band-aid on the problem providing symptomatic relief such as mindfulness or therapy—however, they have yet to address the growing problems, such as inefficiencies and bureaucratic requirements that are overbearing, cumbersome, and lack foresight.

This issue, however, lies not only in our profession, but permeates through society. Opiate and alcohol addiction have contributed to an alarming increase in deaths/suicides. Likewise, a considerably higher number each year of adolescent girls and young women are self-harming. I link this to a decrease in family structure.

As a pediatrician, I have found that there is a growing number of children in our community with untreated mental health disorders or have some type of substance abuse bordering frequently on addiction; this compounded with an increase of children with disabilities, close to 14% cannot be random. Science has demonstrated that children exposed to Adverse Childhood Experiences (ACES) have decreased axonal connection development and although this is most dramatic in the early postnatal years it can also affect children at any age. This is associated with insufficient

emphasis on the building of resiliency, the result is an increase in mental health disorders and inability to handle stressors. The association of ACES and poor resiliency leads not only to mental health conditions but also an increase on organic pathologies that affect every system. The more ACES the higher the impact on the child and the more challenges he will have through his life.

There are a plethora of reasons that our children are starved for structure and engagement. Although the why is of great concern the larger fright is that we, who work with children, in spite of our awareness and desire to intervene, are not developing the necessary programs to prevent and/or rehabilitate those who are impacted. These are problems that Society at large has to address.

In closing, I recognize that these are complex problems that do not have easy solutions; but we must recognize them as emergent needs and begin investing in them before it is too late. I would propose a Public Health approach of unbiased experts that can look at the problem(s) with appropriate perspective and looking not only short term and limited interventions but at a long term road map to enhance the sanity of our society's multiple problems.

---

Gilbert A. Handal, MD  
President, El Paso County Medical Society

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# Editorial Comment

**Alison L. Days, MD**  
*Editor*  
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*Wherever the art of medicine is loved, there is also a love of humanity. ---Hippocrates*

Medicine still matters. It is difficult to hang on to that concept when mired in the mess of pre-authorizations, Meaningful Use, insurance contracts, and hospital credentialing. Not to mention all of the political issues related to the Affordable Care Act, the pending CHIP expiration and Medicaid/Medicare reimbursements. However, despite those things, medicine still matters.

It matters to the heart attack patient who wanders into the ER late at night and walks out of the hospital alive a few days later. It matters to the child with asthma who used to sit on the bench during PE because he was always tired, but now can play with his peers after using his inhaler. It matters to the premature baby with congenital heart disease who no longer gets a death sentence. It matters to the mother of a depressed teen who leaves with more hope after her doctor spent the time to figure out what was wrong.

It matters to the elderly man with a stroke who gets the chance to speak to his grandchildren again through rehabilitation.

There are many doctors who feel like they have lost the ability to make a difference or that they should be in a different profession. Some are even leaving medicine to explore other careers. Leaving the world of medicine is not the answer if you once loved being a physician. It is important to find the way to love it again.

No matter what is happening in politics or business that may affect the practice of medicine, medicine itself still matters. Medical research still matters. Medical education still matters.

Please continue to read and comment on our magazine so that we can keep you engaged and updated.

Wishing everyone a safe holiday season and a Happy New Year!

**Alison L. Days, MD, Editor, El Paso Physician Magazine**

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Wilbur J. Strader, MD, FACP, FACE, ABNM



OPINION

*E.P.C.M.S.*

The definition of diabetes mellitus that is found in our textbooks and in the opening statements of our medical communications is usually, "Diabetes is a chronic metabolic disease characterized by high blood sugars with long-term complications." Is this a reasonable description of this seemingly epidemic problem?

The diagnostic criteria for both Insulin Deficient Diabetes (Type 1) and Insulin-Resistant Diabetes (Type 2) are an elevated fasting blood sugars above 126 mg% (7mmol), an abnormal glucose tolerance test with an elevated blood glucose at two hours over 200 mg% (11.1mmol), an elevated hemoglobin A1c over 6.5% or random blood sugars over 200 mg%. It is recommended that these abnormalities be shown at least twice before the diagnosis of diabetes is made.

In this day of rather significant scientific advances and with medical therapies which seem to defy Mother Nature and cure diseases right and left, these simple diagnostic criteria seem absurd to some of us—especially, since the disease has obviously been present for a long time before we are able to collect the hyperglycemic 'diagnostic' numbers.

Most of us realize that the criteria for the blood glucose levels now used for diagnosis were postulated by clinicians who were observing the end results of chronic hyperglycemia. The ophthalmologists were foremost in relating the apparent effects of long-term hyperglycemia to 'diagnostic levels of glucose.' Diabetic retinopathy was the benchmark on which we rested the validity of our diagnostic glucose criteria. This is history and is not of scientific interest to us today.

What is of interest is that there seems to be an epidemic of insulin resistant diabetes mellitus Type 2 (DM2) with attendant complications and co-morbidities, which is overwhelming the ability of our medical system to provide appropriate service. It is important that we treat and defeat DM2. This might be done more effectively by starting our therapies before the disease is overtly manifest by hyperglycemia.

So, maybe the diagnostic criteria need tweaking. It is known that diabetes is a genetically modulated disease. The initiating causes of clinical hyperglycemic DM2 are in part --1. genetic abnormalities, 2. aging, 3. stressful situations, and 4. excessive obesity.

There are other factors that are contributory to the progression of the

condition; but, like so many other diseases, the main cause should be uncovered, displayed and explained. It would appear to many of us that the underlying and main pathophysiological cause of diabetes is genetic aberrations. We read of many genes that seem to be connected with hyperglycemia – adiponectin 3q27, insulin gene, HNF-1a, PPARG gene, TCF7L2, melanocortin gene, apoprotein L1, TCF7L2, IRS1, G6PC2, etc.

Several years ago, a geneticist told me, "Dick, there are over 100 genes that seem to be associated with hyperglycemia. Most of us think it takes four or five to cause persistent hyperglycemia that we can call diabetes." The Finnish report in *Diabetes*, 2011, studied 24 gene loci and found that different combinations seemed to cause various diabetic complications. This would detract from our simple suggestion that chronic hyperglycemia or glucotoxicity (>170mg%) cause the complications of DM2. It may well be that specific genetic loci determine which ill effects a patient will develop, and that many combinations of the 'facilitating' genes cause the diagnostic characteristic of hyperglycemia.

I suppose the point of this ramble is to suggest that if we are really interested in controlling DM2 and in limiting the long term complications, we should look to our genetic data and try to develop a methodology to identify highest-risk patients early. Perhaps identifying the hundred most implicated genes would provide enough of a basis to develop an algorithm to diagnose occult diabetes—eg. Five of 100 selected causative genes in anyone's genome would be 'diagnostic' of impending diabetes. If that were the case, we have at our disposal drugs that should delay the overt symptoms and perhaps complications of diabetes for years.

Instead of beginning the DM2 patient, who already has advanced—diagnostic-- hyperglycemia, on metformin, which merely inhibits the genetically induced excessive production of glucose from a mal-regulated liver; we might treat with a Thiazolidinedione TZD PPAR-gamma enhancing medicine. This would improve the sensitivity of endogenous insulin and prevent the hyperinsulinemia, abnormal glucagon feedback and beta cell dysfunction that seem to be the hallmarks of early DM2. Likewise, GLP-1 medications could be used earlier to enhance the pancreatic production of insulin and critical regulatory hormones and probably delay overt diabetic symptomatology—with the added advantage of satiety and weight loss. A very early diagnosis—before overt signs and metabolic abnormalities—might lead to new drugs or to gene-altering techniques that would negate the development of DM2.

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**A World With Less DM2  
(Continued)**

The longer the overt symptoms and signs of the disease are delayed, one would suppose, the less the complications and the less impact the disease would have on our society. We would still have to periodically measure the blood sugar—or some critical marker hormone, insulin, c-peptide or A1C—to evaluate our therapies. But, by controlling the basic underlying pathophysiologic mechanisms very early in the disease and by preventing the development of hyperglycemia (now necessary to make the diagnosis and start therapy,) we should be better able to control the development of complications.

A few years from now the diagnosis of DM2 may not be dependent upon blood sugars and A1C but, rather, upon a single drop of blood taken from an infant's foot and tested for the critical genes that are associated with the disease.

Obviously it is a multifaceted problem, and there must be hundreds of different combinations of genetic material that result in the condition we call diabetes mellitus. In this day of computers, electronic medical records and data overload, it seems to me that a concentrated push by our genome-studying geneticists would be most welcome.

Of course, we would probably find that our society has a 50% or higher chance of developing hyperglycemia and some subtype of

diabetes on a genetic basis — unfortunately, this is a fact we are already experiencing when we study that segment of our society which is being overfed.

There are, however, very obese persons who do not develop hyperglycemia, hyperinsulinemia and the overt co-abnormalities associated with DM2. Their genotype and distribution of diabetic causing genes must be interesting — another area for study by our geneticists and genome studying colleagues.

In the meantime, we can at least try to educate ourselves and our patients to the advantages of weight control, exercise and earlier utilization of those drugs that can reverse the hormonal abnormalities causing the disease.

It may be that the cost to our system would be overwhelming, and that onerous controls would be developed for who could receive therapy—maybe it is still too soon to really know what causes and what might prevent such a pervasive disease. But, what would our world be with less DM2?

---

**Wilbur J. Strader, MD, FACP, FACE, ABNM, is an Endocrinologist at County Club Medical Center, LLC, El Paso, TX.**



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## CASE REPORT

*E.P.C.M.S.*

## The BRCA2 Gene: A Case Study

Carlos A. Dobler, CPT  
Aaron Valenzuela, BS  
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Jesus A. Gomez, MD, FACP

CASE REPORT

The BRCA-1 and BRCA-2 suppressor genes are involved in DNA repair via homologous recombination resulting in genomic instability and loss of function mutations confer a predisposition to malignant transformation.<sup>1,2</sup> BRCA genes and gene products interact with a number of regulator proteins involved in a multitude of pivotal cellular processes such as maintenance of chromosomal stability, cell cycle control, and apoptosis.<sup>3</sup> Their discovery led to the first real-world application of synthetic lethality expediting the drug development of PARP inhibitor and personalized medicine in patients bearing such mutations.<sup>4</sup>

BRCA-1 associated phenotype is characterized by an increased risk for female and male breast cancers; ovarian cancer including the fallopian tubes, and primary peritoneal cancers.<sup>5</sup> The phenotypic spectrum of BRCA-2 associated malignancies is much broader than that of BRCA-1 and includes solid cancers such as, breast, ovarian, prostate, gall bladder, gastric, pancreatic cancer and melanoma, and hematologic malignancies such as acute, and chronic myeloid leukemia, acute promyelocytic leukemia, chronic lymphocytic leukemia, non-Hodgkins lymphoma and Fanconi anemia.<sup>6-10</sup>

The BRCA-2 phenotype continues to evolve into a seemingly delayed fuller spectrum that includes other entities such as CNS malignancies. Initial evidence of a possible genetic link came with metachronous clinical observations between the development of breast cancer and various latter neurologic neoplasms. Several authors have reported that meningioma occur more frequently in patients with a history of breast cancer.<sup>11</sup> Piccirilli et al. recently described the occurrence of glioblastoma multiforme (GBM) in eleven Italian patients previously treated for breast cancer, although no mutational analyses were performed.<sup>12</sup> As BRCA-2 pathways are better understood, several component BRCA-2 gene proteins, and their protein-protein interactions are now emerging as having important roles in neural regulation and development, with evidence suggesting that defects in this pathway contribute to the formation of primary neurologic malignancies, including GBM.<sup>13-15</sup>

We present this case study which represents an extended natural historical account of a BRCA-2 phenotype. It is an in-depth, multifaceted exploration of the complex issues in the real-life setting of a BRCA-2 deleterious mutation. It also suggests adding at least two other features to the BRCA-2 phenotypic picture, that is, a potential curative chemosensitivity in low-burden metastatic settings and increased potential for delayed CNS malignancies. These new

phenotypic features in turn may advance clinical options for these inherited disorders such as adjuvant and secondary prevention use of PARP inhibition.

### CASE REPORT

The patient is a 57-year-old Caucasian female, who at the age of 24 was noted to have JAK2 positive myeloproliferative disorder in the form of essential thrombocytosis with a platelet count over 1.5 million, requiring hydroxyurea. She presented at age 31 with a 5 cm mass in the left breast, which was a moderately differentiated infiltrating ductal carcinoma with two involved lymph nodes, and hormone receptor positivity. The patient underwent six cycles of fluorouracil, doxorubicin, and cyclophosphamide (FAC) chemotherapy. At age 33, she developed metastatic disease with involvement of the left superior acetabulum, with cortical destruction. She was treated with radiation therapy and hormone therapy. At age 34, she underwent triple alkylator chemotherapy with autologous stem cell rescue. The conditioning regimen consisted of high dose carboplatin (600mg/m<sup>2</sup>), thiotepa (900mg/m<sup>2</sup>), and cyclophosphamide (180mg/kg). Since high dose chemotherapy, she has remained in remission with no evidence of disease on tomographic and nuclear medicine imaging. Genetic testing in November of 2015 detected a deleterious BRCA-2 mutation with a 5104delAA. Her mother and sister were also positive for the same BRCA-2 mutation. She underwent an elective risk-reducing laparoscopic hysterectomy, with bilateral salpingo-oophorectomy and was found to have a superficially invasive 1 cm endometrioid adenocarcinoma involving less than 50% myometrium. She received no adjuvant therapy.

In January of 2017, she developed weakness in her right arm, headaches, and confusion with expressive aphasia. Magnetic Resonance Imaging (MRI) of her brain showed a large complex cystic mass measuring 4.2 x 2.7 cm in the left frontal region, with surrounding vasogenic edema. There was a noted area in the scan of abnormal signal intensity in the contralateral periventricular white matter suspicious for multicentric disease. The patient underwent a left parietal craniotomy for a gross total resection of the mass in the left frontal lobe. Pathology was consistent with GBM, WHO grade 4, IDH-1 wild type, by immunohistochemistry. The tissue was negative for P53, MGMT promoter methylation, and EGFR mutation was not detected. Postoperative MRI showed left parietal craniotomy with postsurgical changes in the high left frontal lobe.

There was interval decrease in the size of the previously demon-

**Continued on page 8**

**The BRCA2 Gene: A Case Study  
(Continued)**

strated left frontal lobe lesion; however, peripheral nodular enhancement continued, presumably representing residual disease/ local recurrence. Also noted was a new enhancing bilobular lesion in the high right frontal lobe measuring 1.4 x 1.3 x 2.6 cm, and new enhancing lesion in the left thalamus measuring 0.4 cm. She received external beam radiation therapy concomitantly with temozolomide at 75mg/m<sup>2</sup> during the course of radiation therapy. Radiation therapy covered the site of resection and thalamic lesion. She continues monthly pulses of temozolomide with concurrent low-intensity electric tumor-treating field therapy with the Optune device.

**DISCUSSION**

Over the last 20 years, there has been considerable progress in our understanding of cancer susceptibility genes. Previous retrospective clinical studies had grouped both BRCA-1 and 2 mutations to assess potential associations with cancer outcomes, often with conflicting results.<sup>16-17</sup> Most of those studies were statistically underpowered to differentiate the effects of BRCA-1 and BRCA-2 in terms of chemosensitivity, treatment outcomes, prognosis, and survival.

This case study serves to emphasize unique characteristics of BRCA-2 pathology. It serves to highlight research into the effect of the presence of BRCA-2 mutations on (a) chemosensitivity and treatment outcome, (b) the possibility of GBM being part of BRCA-2 phenotype, (c) germline BRCA-2 mutation predisposing to a JAK2-related clonal hematopoiesis and myeloproliferative neoplasms and finally, (d) potential advantage of using PARP inhibitors concomitantly with temozolomide to counter drug resistance in the treatment of the GBM, as well as potential justification for adjuvant and secondary prevention in patients with BRCA-2 associated malignancies.

Pre-clinical studies conducted in both mice and human cell lines without functional BRCA-1 and 2 proteins have an increased sensitivity to chemotherapeutic agents that cause double-strand breaks, such as platinum and anthracyclines.<sup>18</sup> However, clinical trials assessing outcomes in BRCA-1 and BRCA-2 related malignancies compared to sporadic breast cancer patients have yielded conflicting results.<sup>19,20</sup> Most of those clinical studies have been retrospective and biased, as initial outcome reports come from genetic screening centers. Robson *et al* were the first to report differential clinical outcomes between BRCA-1 and BRCA-2 in the adjuvant setting. They reported on retrospective adjuvant therapy studies that demonstrated differential clinical outcomes among Ashkenazi women with either BRCA-1 or BRCA-2 breast cancer receiving adjuvant chemotherapy for early stage invasive breast cancer.<sup>21</sup> At a median follow-up of 116 months, breast cancer specific survival was worse in women with BRCA-1 mutations (62% vs 86%; P<0.0001) than in those without the mutation. Women with the BRCA-2 mutation had significantly better outcomes of specific survival (84% vs 86% P=0.76).<sup>21</sup>

This chemosensitivity BRCA-2 trait has also been demonstrated in the metastatic setting. Kriege *et al*, studied 93 BRCA-1 and 28 BRCA-2 associated metastatic breast cancer patients treated with anthracycline-based regimen cyclophosphamide/ methotrexate/ fluorouracil (CMF therapy).<sup>22</sup> As compared to sporadic cases without the BRCA gene mutation, BRCA-2 associated patients had a significantly higher overall survival (89% vs 50% non BRCA cancers; P=0.001). They also had longer progression-free survival with a hazard ratio of 0.64; P=0.04, and prolonged overall survival with a

hazard ratio of 0.53; P=0.005 after start of first line chemotherapy for metastatic breast cancer. For BRCA-1 related cancers, no statistically significantly higher chemosensitivity was observed.<sup>22</sup>

Remarkably, in a case study similar to the one presented here, Huang *et al* reported a patient who developed bone involvement despite adjuvant hormonal therapy for early stage breast cancer, who was treated with tandem autologous bone marrow transplantation, and high dose alkylator- and platinum-based conditioning regimens. A complete clinical and radiological remission has been maintained for 11 years. In an attempt to investigate this unusual and sustained complete remission, BRCA-1 and BRCA-2 mutational analysis was performed. A BRCA-2 8765del AG was identified.<sup>23</sup> Our case study patient appears to be the second reported BRCA-2 case of sustained remission of 23 years.

This case study further expands phenotypic definition of the natural history of BRCA-2 associated metachronous CNS malignancies. Both BRCA-1 and 2 gene proteins and their protein-protein interactions are now emerging as having important roles in neural regulation and development. Indeed, BRCA-2 is essential for normal neurogenesis.<sup>13</sup> Studies with murine models have shown that neurogenesis is a DNA damage-induced apoptosis phenomenon, where by the tumor suppressor gene P53 deficiency abrogates the developmental defects caused by BRCA-2 loss, but leads to formation of medulloblastomas.<sup>24</sup> There is mounting clinical biochemical and genetic evidence that proteins involved in homologous recombination repair through the BRCA-1 and BRCA-2 pathways are important in the development of brain malignancies, particularly medulloblastomas and astrocytomas.<sup>24</sup>

The patient reported here presented with a multicentric GBM. Multicentric GBMs are considered rare, comprising only 2 – 9% of all GBMs.<sup>26</sup> Multicentric gliomas are well-separated lesions, located in different lobes or hemispheres and cannot be ascribed to dissemination through commissural pathways, cerebrospinal fluid, blood or local extension.<sup>26</sup> Furthermore, multicentric GBM associated with other primary cancers is extremely rare. This appears to be the first case of multicentric GBM associated with BRCA-2. A similar multicentric GBM was reported by Elmariah *et al* in a patient with BRCA-1 invasive breast cancer,<sup>25</sup> and may be included as part of the BRCA clinical phenotype. This clinical feature may also affect clinical management of such patients with BRCA deleterious mutations presenting with multifocal brain lesions, and may need diagnostic histology confirmation of more than one lesion for accurate histologic diagnosis and tumor debulking.

This case report also describes the initial presentation of a myeloproliferative disorder seven years prior to development of breast cancer, ten years prior to developing uterine cancer, and fourteen years prior to development of GBM. Using genome wide association studies (GWAS) to identify novel predisposition alleles associated with myeloproliferative neoplasm and JAK2 V617F clonal hematopoiesis in the general population, Hinds *et al* showed germline variants CHEK2, ATM, PINT, and GFI1B endowed individuals with a predisposition to JAK2 V617F clonal hematopoiesis.<sup>27</sup> Our case study may be the first reported case of a somatic JAK2 mutation myeloproliferative disorder associated with a germline BRCA-2 breast cancer patient, and can be added to the evolving phenotype of BRCA-1 and

**Continued on page 9**

**The BRCA2 Gene: A Case Study  
(Continued)**

2 germline disorder, or perhaps, even the concept of “BRCAness” traits in sporadic malignancies.

Even with aggressive surgical resection, using state of the art technology, preoperative and intraoperative neuroimaging, along with recent advances in radiotherapy and chemotherapy, the prognosis for GBM patients remains dismal. One of the reasons for treatment failure is ‘de novo’ or acquired resistance to chemotherapeutic agents. Temozolomide is the current first-line chemotherapy agent for GBMs with adequate blood-brain barrier penetration and limited bone marrow toxicity. Its mechanism of action involves the addition of methyl groups to several DNA strand breaks and eventually growth arrest and apoptosis; however, virtually all GBMs develop secondary treatment resistance after administration of either temozolomide, radiation, or a combination of temozolomide and radiation.<sup>28</sup> Poly (adenosine-diphosphate ribose) polymerase (PARP) inhibitors are novel biologic agents that have become important in BRCA-1 or BRCA-2 mutated malignancies, and PARP inhibition will likely play a major role in the management of BRCA associated neurologic malignancies.<sup>29</sup> With the recent observations that olaparib crosses the blood-brain barrier, and in-vitro evidence shows that the addition of olaparib to temozolomide restores apoptotic sensitivity, it is now entering Phase I/II clinical trials in combination with temozolomide in the treatment of GBMs.

Since its discovery by Michael Stratton and co-workers 22 years ago,<sup>31</sup> BRCA-2 has been one of the most thoroughly investigated human cancer genes. Its discovery has spawned new directions in molecular understanding, cancer-drug development, and genetic counseling strategies, which all help save countless lives through hypothesis-based associations. Its full phenotypic spectrum and genetics continue to exponentially evolve to hypothesis-free genome-wide association studies (GAWs) as we move forward with near-population based testing to identify genetic modifiers of cancers risk in BRCA-1 and BRCA-2.<sup>32</sup> Meanwhile, the potentially curative chemosensitivity that this BRCA-2 patient demonstrated may justify the potential adjuvant or secondary prevention use of PARP inhibition in similar patients. It is hoped that this case study, and other similar reports, will promote better understanding of the unique clinical and molecular aspects of BRCA-2 pathology.

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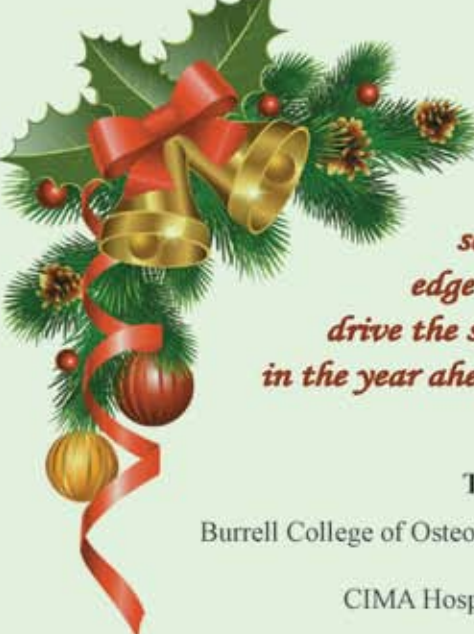
Michele Aboud, administrator of CIMA Hospice in El Paso has successfully achieved Administrator Certification in hospice and palliative care. She is one of only 24 certified hospice administrators in the state of Texas. Candidates for certification must have at least 2 years of experience as a hospice or palliative care administrator and undergo rigorous testing and checks on all platforms of hospice care to qualify for The Hospice and Palliative Credentialing Center (HPCC) certification.

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**The El Paso County Medical Society would like to Thank all the Medical Students who helped answer the calling questions for the El Paso Physician TV Show**

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Eryn Pynes  
Servando Rivera  
Loc-Uyen Vo

For the 100<sup>th</sup> anniversary of Rotary Club of El Paso, a significant project was desired. Thus, RotaCare El Paso Free Clinic was conceived. Rotary Club of El Paso partnered with Texas Tech Department of Medicine several years ago for the planning phase of the project. Much research, time and effort was expended to culminate in the Grand Opening of the RotaCare El Paso Medical Clinic on September 13, 2014, and now its continuing operation. The clinic is staffed by volunteers including Texas Tech Faculty and Residents, Texas Tech Paul L. Foster School of Medicine students, pre-med students from University of Texas El Paso, RN volunteers from both schools, Social Workers from University Medical Center of El Paso and nutritionists. The innovative project was fully supported and endorsed by Dr. Manny De La Rosa, the Founding Dean of the Medical School as well as by Dr. Richard McCallum, a Professor and Founding Chair of the Department of Internal Medicine at Texas Tech University Health Sciences Center. Dr. McCallum was the first Medical Director of the Clinic. Rotary members of the advisory committee include Dr. Lyn Mansfield, Committee Chair, Mr. David Kessinger, Dr. Paul Huchton, and Mr. Greg Hartley, Mr. Jim Tritton and Mr. Stan Okies (see front cover pictures). Overseeing clinic operations as Clinic Manager is Betty Gallegos, MSN, RN, CCRN. Pastor Dr. Hymer of the San Pablo Lutheran Mission where the clinic is located has also been tremendously supportive. The clinic mission is to “provide free medical care in El Paso for those who have the greatest need and the least access.”

Since its inauguration three years ago on the grounds of San Pablo Lutheran Mission church, RotaCare has served one of the highest need communities in the El Paso region. The patient population is largely Hispanic, consistent with the demographics of the area, and includes the uninsured and underinsured, undocumented immigrants, halfway house patients, and Mexican citizens. On average, 14 patients are seen each week on a Saturday morning from 9am to 1pm. 485 patients were seen in 2015, 826 in 2016, and 650 to December 2<sup>nd</sup> of this year, making a total of almost 2,000 patients. While the clinic was established to be a point of care facility, leadership has gradually expanded the range of services offered, provided to patients at no cost, with the purpose of becoming a comprehensive community resource.

From the clinic's establishment, major services have included primary care with specialty clinics, basic labs onsite, and consultations by volunteer social workers. Within the past year, the clinic landscape has changed considerably. Specialty clinics (Obstetrics/Gynecology, Gastroenterology, Orthopedics, and Ophthalmology) are regularly scheduled and targeted to patients with relevant medical concerns. More recently, the clinic has secured a grant through the City's health department that enables the free clinic to provide multiple services, including: consultations with onsite social workers, onsite nutrition classes, preventative health services, and a community

health care worker to follow up with said services. Adult vaccines, colonoscopies, Pap smears, and mammograms can be obtained at no cost to eligible patients as determined through a screening survey. Collaboration with the local health department has provided the means for the clinic to provide compensation to social workers for services provided, thus ensuring consistent social worker availability to supplement medical care. Nutrition classes are hosted during clinic hours in a classroom provided by the Lutheran Mission church; nutritionists provide didactic presentations as well as interactive meal preparation and exercise demonstrations. Nutrition is particularly relevant to the demographic of the patients who often have diabetes, obesity, hypertension, hypercholesterolemia, and dyslipidemia.

Members belonging to the Collegiate Double T Health Professions Honor Society at UTEP have volunteered weekly since the clinic first opened its doors, primed with the task of registering, triaging, and now, given the recent grant acquisition, surveying patients. Some of these pre-med students have since been accepted to our Paul L. Foster Medical School and others are in the process of applying. Medical student volunteers (see pictures) in their first and second years have the opportunity for the first time to be “hands on” and alone with a patient and to expand their knowledge and practice their bedside manner; students are charged with eliciting a history from the patient, conducting the physical exam. They then present their findings to an attending and in turn decide on chemistries and blood tests that can be performed in the clinic Lab or sent out. In addition they instruct the patient on how to manage their care beyond the clinic's doors and follow up visits are arranged. Social workers see patients to plan how to re-enter the medical system and afford outside referrals. Medical students alone have contributed 1700 hours of volunteering in the past 10.

#### **Federal and Texas Laws on Volunteerism:**

The continued presence of RotaCare is largely in part to the generosity, consistency, and dedication of local physicians, retired and current practitioners, who share their Saturday mornings with RotaCare staff to care for persons with the least access to care and the greatest need, and to teach future physicians. Physician volunteerism at RotaCare is promoted and protected primarily by three pieces of federal and state legislation: the federal Volunteer Protection Act, the Texas Good Samaritan Law, and the Texas Charitable Immunity and Liability Act. The Volunteer Protection Act provides that no volunteer of a nonprofit organization, as outlined in this work, or governmental entity can be held liable for harm caused by an act or omission on behalf of the organization, so long as the volunteer meets four explicit criteria. The criteria are as follows: the volunteer must have been acting within the scope of their responsibilities to the organization, the volunteer must have been properly authorized by the appropriate authorities for the practices in the State in which the harm occurred, the



harm cannot be the result of willful or criminal misconduct, and the harm may not have been the result of the volunteer operating a vehicle (motor, vessel, aircraft, etc.) for which the State requires a specific license or insurance. The Texas Good Samaritan Law limits the civil liability of those providing emergency care in good faith, unless their actions are willfully negligent. This premise extends to those providing voluntary medical assistance, physicians as well as volunteer first responders and unlicensed/uncertified medical personnel, so long as the following requirements are met: their actions were in good faith, they were not compensated, and their actions did not cause the emergency. Finally, the Texas Charitable Immunity and Liability Act was established to encourage volunteer services while reducing liability exposure and insurance costs of charitable organizations and their respective employees and volunteers; it confers protection to employees and volunteers meeting the requirements of a charitable organization as outlined in its terms. As such, under this piece of legislation, physician volunteers are provided immunity for providing non-emergency care for charitable organizations that meet the specifications, as is the case with RotaCare.

#### **Summary:**

For their dedication to the cause here at RotaCare, under the protection of the above mentioned legislation, we have to thank the following physicians: Dr. L Mansfield, Dr. S Alvarez, Dr. D Mansfield, Dr. A Hale, Dr. C Gutierrez, Dr. A Casillas, Dr. G Woods, Dr. J De la Torre, Dr. T Funkhouser, Dr. J Burgos, Dr. M Traylor, Dr. J Serna, Dr. S Sarre, Dr. D de la Mora, Dr. S Moraveji, and Dr. W Lou. In addition to these invaluable physicians, the backbone of the clinic is Betty Gallegos RN, the clinic manager who helps operate the clinic every week, along with Dr. Jose Ricardo Espinosa, RotaCare's Medical Director, and Dr. Richard McCallum, founding

Medical Director, who also is the liaison and coordinator for the Texas Tech Medical Students (see picture front cover). Dr. Espinosa was the Unit Director of Nephrology at Juarez General Hospital and organized the first Kidney transplant in Juarez. Dr. Espinosa is a true "angel" and a dedicated, compassionate and committed retired physician whom Dr. McCallum initially recruited and has now become the "key" to the ongoing success of this clinic. In addition, the role of the medical student leadership over the last three years, including Chelsie Hollas, Jerry Fan (MD), Jennifer Nielsen, Micah Ellowitz, Jake Wilson and currently Christina Alvara were crucial in organizing the work schedules, running our chemistry laboratory and sustaining morale. This has been something to behold and reminds us that the future of medicine is indeed in "good hands". Under their initiative presentations about our Free Clinic and its unique infrastructure have been made at National meetings of Free Clinics where RotaCare received recognition as the best University affiliated/Medical Student run Free clinic.

RotaCare/Texas Tech Free Clinic is a true "jewel" to the El Paso Community and the goal is to continue this still evolving asset, notable for improving the wellness of the surrounding community and promoting the education of future practitioners. Through the collaborative efforts amongst several stakeholders, we know the success of this endeavor will continue to be possible.



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#### **RotaCare El Paso Free Clinic**

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Clinic Hours  
every Saturday 9:00 am to 1:00 pm

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*Pictured with the Founding Dean are Voluntary Texas Tech Faculty, Medical Residents and Medical Students*



## Treating Achalasia in Pregnancy: A Unique Challenge

Lindsay Wencel

Richard McCallum, MD, FACP, FRACP (Aust), FACP, AGAF

### ABSTRACT

Achalasia in pregnancy presents a unique challenge due to the increased risks of complications as well as the complexity of treatment. Botulinum toxin injection shows evidence of being a safe and effective short term treatment of Achalasia during pregnancy. The efficacy period is enough to enable the successful completion of pregnancy before utilizing more invasive treatment techniques. This report presents a 22-year old Hispanic female gravida 2 para 1, who was diagnosed with Type B Achalasia at 27 weeks of pregnancy. She was treated during pregnancy with endoscopic botulinum toxin injection and reported a 90% recovery. After delivery of her child, the patient returned for pneumatic dilation due to the treatment's longer term efficacy.

### INTRODUCTION

Achalasia is a rare motility disorder involving the loss of neural input to the esophagus, leading to dysfunction of the esophageal smooth muscle and the lower esophageal sphincter (LES). The condition is characterized by dysphagia of both solids and liquids due to insufficient LES relaxation, increased LES tone, and aperistalsis of esophageal smooth muscle. Other associated symptoms include heart burn, regurgitation which can result in aspiration pneumonia, nausea, vomiting, and weight loss as the condition worsens.<sup>7</sup> Achalasia, while rare with a prevalence of only 10 in 100,000, poses a significant risk of poor outcomes if untreated.<sup>6</sup> The standard of care treatment for long term care of achalasia includes pneumatic dilation of the LES, a surgical myotomy of the LES, termed a Heller myotomy, or endoscopic cauterization of the smooth muscle termed as per os endoscopic myotomy or POEMs procedure.

Achalasia is associated with persistent malnutrition, and untreated severe cases can lead to maternal and fetal death.<sup>5</sup> Treatment of achalasia in pregnancy is complicated by the inherent risks of pneumatic dilation, a slight but significant risk of perforation, with serious consequences for both the patient and developing fetus. The endoscopic POEMs procedure confers similar risk of esophageal perforation. Surgical intervention is not appropriate during pregnancy unless there is a lifesaving indication.

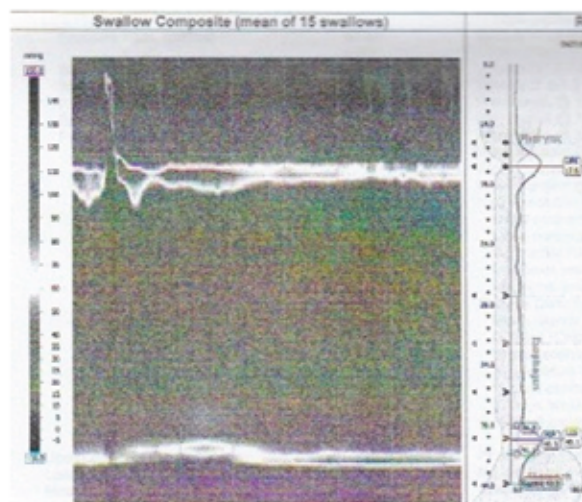
Due to the rarity of this phenomenon in pregnancy, very little literature exists about proper protocols in treating this condition. We present a case of achalasia in pregnancy that was safely and successfully treated with endoscopic botulinum toxin injection.

### CASE REPORT

Our patient is a 22-year-old Hispanic female gravida 2 para 1, presenting with a greater than 1-year history of severe dysphagia to

solids and liquids, regurgitation, and weight loss. She presented for esophageal manometry after referral from another gastroenterologist. At the time of this first encounter, she had an intrauterine pregnancy of 27 weeks. Patient reported an approximately 37 kg weight loss over the last year. Since becoming pregnant, she had an approximate weight gain of 3 kg. She indicated that OB was very concerned about the progress of her current pregnancy. Her previous pregnancy had been uncomplicated.

Esophageal manometry, using a high resolution manometry technique, was performed and illustrated a lower esophageal sphincter pressure of 45 mmHg (normal range 10 – 40 mmHg) and with wet swallows a minimal LES relaxation of 24% with significant residual pressure of 39.4 mmHg (normal <15.0). Examination of esophageal peristalsis yielded 0% of 15 wet swallows induced a propagated peristaltic result.



**Figure 1:** High resolution esophageal manometry demonstrating loss of peristalsis in the esophageal smooth muscle with minimal relaxation of the LES with wet swallows, while upper esophageal sphincter and striated muscle remain intact.

All simultaneous contractions were very low amplitude, less than 50 mmHg. By Chicago Classification Criteria, this classifies her as Type B achalasia.<sup>9</sup>

For treatment of achalasia during pregnancy, endoscopic delivery of Botox [botulinum toxin] injection was chosen as the appropriate

Continued on page 17

## Treating Achalasia in Pregnancy: A Unique Challenge (Continued)



**Figure 2:** Endoscopic images of lower esophageal sphincter and a retroflexed image of the endoscope tightly enclosed by the LES, prior to Botox therapy.

treatment path, which could safely induce an immediate response. The intention being that after delivering, the patient would undergo pneumatic dilation as a longer term solution.

A subsequent endoscopy was performed and findings included significant dilation and non-motility of the entire esophagus. Additionally, there was a narrowed esophageal sphincter opening with resistance upon advancement to the stomach through the LES. All other findings were normal. Botulinum toxin was administered 25 units into each quadrant of the LES, in a clock face injection pattern at 12, 3, 6, 9, for a total of 100 units injected.

Upon follow up 5 days post-treatment, patient reported 90% reduction in symptoms. Over the remainder of her pregnancy, the patient reports 6.8 kg weight gain. Near the end of the pregnancy she began to develop symptoms again, but still maintained a self-reported 70-75% improvement when compared to pretreatment. She delivered a completely healthy female child, weighting 2.69 kg at 36 weeks. The delivery was uncomplicated. She subsequently underwent pneumatic dilation. At the time of definitive treatment, her self-reported symptoms remained 50% better than before initial treatment, but she was once again experiencing nocturnal regurgitation. The dilation occurred when she was 8 weeks' post-partum, using a 30 mm diameter balloon and a pneumatic dilation technique. The procedure was successful and without complications.

### DISCUSSION

In pregnancy, achalasia has potential to be even more debilitating, and potentially life threatening if left untreated. Malnutrition of the mother results in morbidity and mortality to both the mother and the developing fetus. Diagnosis can also be delayed due to the similar symptomatology between achalasia and pregnancy-related sickness. Treatment of achalasia in pregnancy presents a unique clinical problem as traditional options are contra-indicated. Due to the rarity of this phenomenon, the existing literature is quite limited, and does not provide a consensus on treatment options.

In the case of our patient, immediate intervention was required for the wellbeing of both mother and child. The usual standard of care treatment, pneumatic dilation presented a small but unacceptable risk to both mother and child. The rate of perforation is typically low at 1-2%,<sup>3</sup> but has been reported as high as 8%. This complication can require surgical intervention. Pneumatic dilation also requires fluoroscopic positioning for the balloon in the LES. Continuous radiation presents a risk to the developing fetus, and thus contraindicated in this case.

Additional treatments were considered, including total parenteral nutrition (TPN), laparoscopic Heller's myotomy, and botulinum toxin. In weighing treatment options, botulinum toxin was deemed to be an effective short term option.<sup>4</sup> Although botulinum toxin is designated as a Class C drug by the FDA, with potential for adverse effects on fetal development, in this case the benefits were deemed to outweigh the risks. Small amounts of Botox injected into the smooth muscle of the lower esophageal sphincter can perfuse into the mediastinum due

to the esophagus's lack of serosa. This can result in a small degree of transient chest pain.<sup>10</sup> However, no systemic absorption or complications have been reported.

Botulinum toxin's safe utilization in treating achalasia in pregnancy was previously illustrated by both Hooft et al. (2015) and Wataganara et al. (2009).<sup>12,9</sup> In both reports, the child was born near full term without other adverse outcomes. The women in both cases were older, greater than 30 years old, and with shorter duration of symptoms. Our case's successful treatment further supports the use of botulinum toxin as a rational choice for treatment of achalasia during pregnancy.

### CONCLUSION

Achalasia in pregnancy poses a unique challenge. Botulinum toxin injections can be a safe and effective temporary treatment for achalasia during pregnancy, enough to enable the successful completion of pregnancy before utilizing other treatment techniques for sustaining long-term efficacy.

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## Spreading Depigmentation

Haley Phillips, MS-III  
Hector Franco, MD  
Ellen Dudrey, MD  
Niti Manglik, MD  
Diana Pettit, PhD  
Dale Quest, PhD

A male adolescent Dene patient initially presented with a single halo nevus located at the right 4th intercostal level in the anterior axillary line. Within about one week, vitiligo unexpectedly spread rapidly in a segmental pattern across the right chest up to the midline, then remained quiescent. The boy incidentally had symmetrical pityriasis alba on cheeks, a common condition in Dene children.



Which two (2) of the following associated features are most likely?

- A. new lesions or enlargement of existing macules after months of quiescence
- B. thyroid dysfunction (or other autoimmune disorders)
- C. sensorineural hearing loss
- D. myeloproliferative neoplasms, including polycythemia vera
- E. malignant melanoma
- F. lichen sclerosis
- G. adverse reactions to immunotherapies

Answers on page 22.

# FI GHT CANCER

## Dr. Albino and Dr. Tano bring their expertise to El Paso



Miguel Albino, M.D.

Dr. Miguel Albino is now seeing patients at Texas Oncology in El Paso. Dr. Albino received his medical doctorate from Universidad Central Del Caribe School of Medicine in Bayamón, Puerto Rico. He is board certified in medical oncology and internal medicine and specializes in medical oncology and hematology. He completed his residency in internal medicine and fellowship in oncology at the Veterans Affairs Hospital in San Juan, Puerto Rico.



Sheeba Varughese Tano, D.O.

Dr. Sheeba Varughese Tano is now seeing patients at Texas Oncology in El Paso. Dr. Tano received her doctorate in osteopathy from the University of North Texas Health Science Center in Fort Worth, TX. She is board certified in internal medicine and specializes in medical oncology. She completed her fellowship in oncology and hematology at Louisiana State University Health Sciences Center in Shreveport, LA, and her residency in internal medicine at Methodist Dallas Medical Center in Dallas, TX.

To schedule an appointment with Dr. Albino or Dr. Tano, please call 915-621-6999.

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# American Medical Association Alternate Delegate Report

Roxane Tyroch, MD, FACP

**L**  
**LEGISLATIVE**

*E.P.C.M.S.*



The American Medical Association convened the Interim Meeting in November. I served on Reference Committee B, which dealt with resolutions related to federal legislation. Texas hosted a session on the 2017 hurricane disasters in east Texas. The AMA Foundation and multiple delegations around the country donated to a relief fund for doctors trying to re-establish their practices. AMA staff residing in Chicago donated a great deal out of their pockets to hurricane relief efforts.

My reference committee heard testimony on electronic medical records software issues/vendor accountability, Child Nutrition Programs, body cameras worn by law enforcement officers and pharmaceutical recycling programs. We opposed the Government Mandated Sequester as well as MIPS impositions upon small practices. Did you know that the AMA was heavily involved in the Medicare Macra exemption threshold improvements? The original threshold was a mere \$10,000 on your 990 tax form before you would be subject to MACRA. Next year that will rise to \$90,000 thanks to the work of organized medicine. We continue to advocate to raise the threshold to something that brings justice to physicians that serve the elderly.

A combined CVS-Aetna could position itself as a formidable figure in this changing landscape. Together, the companies touch most of the basic health care services that people use regularly and physicians must consider how CVS retail clinics will impact patient choice, independent groups and physician offices. The AMA is watching and responding to your comments on this matter.

We dealt a lot with scope of practice threats, as always. Do you administer expensive medications in your office practice? AMA is fighting to ensure that these pass-through expenditures are not part of the equation used to calculate your MACRA penalty if there should be one. Other items of business include opposition to reduced payment for the 25 modifier, screening colonoscopy billing issues when a positive finding emerges, unconscionable generic drug pricing, pharmacy benefit managers, prescription drug affordability and improving affordability of insulin. Mixed testimony was heard on Resolution 220 addressing the Americans with Disabilities Act of 1990-expressed goals being that the Department of Justice adopt policy that prevents meritless lawsuits against physicians.

I attended a special meeting held at the annual sessions hosted by the Pennsylvania State Medical Society. Content leaders from around the country shared their experiences with the American Board of Medical Specialties and specialty boards under the supervision of ABMS. Texas legislation passed limiting discrimination by insurance companies based on enrollment in Maintenance of Certification programs. Be assured that there are very brave and intelligent leaders working towards outcomes that ensure patient safety without allowing predatory practices by specialty boards.

The AMA considers and implements the most strategic and sustainable approaches to collaborate and engage with the US Department of Health and Human Services to 1) advance and advocate for policies of importance to physicians and patients 2) promote physician leadership in emerging health care organizational and reimbursement structures and 3) enhance opportunity for physician input.

It continues to be an honor and a privilege to serve as your AMA Alternate Delegate. Please contact me by phone if you have any questions or comments related to the work of this organization.

**Roxanne Tyroch, MD, FACP, AMA Alternate Delegate, El Paso County Medical Society Delegate.**

## Save the Dates! Future TMA Meetings

Put these important dates on  
your calendar!

2018

Jan. 26-27

2018 Winter Conference

Hyatt Regency • Austin

Sept. 28-29

2018 Fall Conference

Hyatt Regency Lost Pines • Austin Area



## TexMed



2018 May 18-19 • JW Marriott San Antonio Hill Country



2019 May 17-18 • Hilton Anatole, Dallas

## Spreading Depigmentation (Continued)

### Did you choose "B" and "C"?

Current evidence suggests that every type of vitiligo has some autoimmune component. Melanocytes are present in the inner ear where they are necessary for normal cochlear function. Perhaps 60% of cases will have cochlear dysfunction, and considering the association with autoimmune disorders, it seems prudent to make note of potential to develop sensorineural hearing loss, uveitis, and autoimmune disorders including thyroid dysfunction (e.g., Hashimoto thyroiditis, Grave's disease), diabetes mellitus, and myasthenia gravis.

Most clinicians are familiar with vitiligo and halo nevi. However, in a minority of cases, vitiligo will occur concomitantly or spread outward from a halo nevus. Vitiligo develops in either a segmental, or more commonly a non-segmental pattern. The non-segmental form is most often bilateral and usually symmetrical, whereas segmental vitiligo is typically unilateral.

### Categorization by pattern of depigmentation and age of onset

**Nonsegmental distribution:** Can start at any dermal area of the body, but fingers, hands and face are often the initial sites. The incidence is much higher than segmental vitiligo. Depigmentation of oral or genital mucosa is more common with nonsegmental vitiligo. Melanocytes of hair follicles are typically spared. Nonsegmental vitiligo is more likely to progress than segmental vitiligo, with appearance of new lesions or enlargement of existing macules beyond a period of stabilization and reactivation months to years after the initial presentation. Isomorphic response to physical insults such as trauma or sunburn involving the dermal layer (i.e., Koebner phenomenon), can trigger progression and extension of nonsegmental depigmentation, and that has implications for protective strategies and potential for iatrogenic triggers.

**Segmental distribution:** The unambiguous broad segmental distribution of depigmentation along the lines of Blaschko usually respects the midline, although some lesions may edge slightly beyond the midline. The band-shaped distribution is more often uni-segmental than multi-segmental, and more often unilateral than bilateral. The distribution has been misinterpreted as dermatomal (zosteriform), but the Blaschkoid distribution is a manifestation of cutaneous mosaicism. Segmental vitiligo tends to occur at a younger age than non-segmental vitiligo, before age 10 in nearly half of cases. About 10 per cent of segmental vitiligo cases occur in association with halo nevi. Such cases are typically associated with rapidly progressive spread, albeit less extensive depigmentation, terminating in quiescence. Stability for 12 months following initial presentation predicts that future progression is unlikely. Leukotrichia/poliosis resulting from destruction of hair follicle melanocyte-keratinocyte units occurs earlier and more often in cases of segmental vitiligo. In contrast to nonsegmental vitiligo, Koebnerization factors have never been definitively implicated in initiation or progression.

Pre-pubertal onset of non-segmental vitiligo, especially halo naevus-associated non-segmental vitiligo has a strong correlation with family history of canities (i.e., premature hair graying), or family history of atopy. In cases associated with atopic eczema, patches of vitiligo exhibit pruritic inflammation at the margin with loss of contact hypersensitivity within the depigmented macules, although there seems to be no association between anatomical sites of eczema and the distribution of vitiligo.

Post-pubertal onset of vitiligo is positively associated with acrofacial

vitiligo, vitiligo universalis, and personal history of anti-thyroid antibodies or thyroiditis.

### Regarding the other answer options:

**A:** Segmental vitiligo is unlikely to progress if quiescent for months after initial presentation. In contrast to nonsegmental vitiligo, Koebnerization factors have never been definitively implicated in initiation or progression of segmental vitiligo. Nonsegmental vitiligo is more likely to progress than segmental vitiligo, with appearance of new lesions or enlargement of existing macules beyond a period of stabilization and reactivation months to years after the initial presentation. Isomorphic response to physical insults such as trauma or sunburn involving the dermal layer (i.e., Koebner phenomenon), can trigger progression and extension of nonsegmental depigmentation, and that has implications for instituting protective and treatment strategies

**D:** Depigmenting reactions have occurred with malignancies, and in response to various immunotherapies.

**E:** The uniform symmetry of the halo surrounding a central nevus helps distinguish halo nevi from the irregular starburst halo phenomenon that occasionally appears around a melanoma. Intra- or extralésional vitiligo-like leukoderma can precede or follow development of melanoma. Biopsy and referral to a dermatologist are indicated for patients with atypical lesions.

**F:** Depigmentation of oral or genital mucosa is more common with nonsegmental vitiligo, and when mucosa is involved, biopsy for differential diagnosis of lichen sclerosis is indicated, mindful that concurrence of lichen sclerosis with vitiligo has been reported.

**G:** There are several case reports of anti-TNF agents associated with halo nevi and vitiligo, interferon alpha-2a-induced vitiligo; interferon beta-1a-associated emergence of vitiligo and multiple halo nevi. Immunotherapy with house dust mite was reportedly associated with spreading of pre-existing segmental vitiligo, and in one case, topical imiquimod treatment of vulvar condylomata was reported to precede multiple halos and vitiligo-like depigmentation.

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## Zika Virus Infection in Texas

Jorge Cervantes, MD, PhD  
Ramu Gudigantala, MPH

Zika virus (ZIKV) was discovered in 1947, and since then, infection by this virus has been associated with sporadic outbreaks in Africa, Southeast Asia, and Oceania.<sup>1</sup> The virus belongs to the family Flaviviridae, which harbors other Flaviviruses such as dengue (DENV), yellow fever (YFV), Japanese encephalitis, West Nile, and tick-borne encephalitis viruses. ZIKV shares various similarities with DENV and YFV, such as structural composition and utilization of *Aedes* spp. mosquitoes for their transmission.<sup>2</sup> ZIKV pathogenesis, however, is unaffected by pre-existing immunity to DENV.<sup>3</sup>

There are two lineages of ZIKV, African and Asian. The latter appears to be the one associated with the latest epidemic that began in 2015 with a cluster of dengue fever-like illness in Brazil.<sup>1</sup> By 2016 Brazil reported more than 30,000 cases<sup>4</sup> that included several cases of Guillain-Barre syndrome (GBS), and an epidemic of microcephaly and other neurological defects in newborns.<sup>5</sup> The virus has since been reported in at least 33 countries. The fast spread of ZIKV in the Americas has been attributed to the presence of an effective vector, *Aedes aegypti*. The virus can also be transmitted sexually, vertical (from mother to fetus), and through blood products.<sup>6</sup> If living or traveling to any area with risk of Zika, it is recommended to delay conception,<sup>7</sup> to limit the development of fetal and newborn neurologic defects and microcephaly.

Most people infected with ZIKV will be asymptomatic.<sup>8</sup> When symptoms are present, they are similar to dengue and chikungunya (i.e. fever, rash, joint pain, conjunctivitis, muscle pain and headache).<sup>7</sup> The disease's incubation period is likely to range from a few days to two weeks.<sup>1</sup> ZIKV remains in an infected person's blood for about a week, and in semen for almost 3 months.<sup>9</sup>

#### ZIKV infection in Texas

The CDC has reported more than 5,000 cases in the U.S. since 2015.<sup>7</sup> Initial cases of ZIKV identified in the U.S. were mainly imported from South and Central American countries, until autochthonous cases of Zika were later detected in Florida and Texas.<sup>5,10,11</sup> The first Zika case in Texas was sexually transmitted.<sup>12</sup> Between 2015 - 2016 a total of 323 cases were reported in Texas. As of December 8, 2017, there had been 45 cases of ZIKV disease in Texas.<sup>13</sup> Between 5 to 10% of pregnant women in the U.S. and U.S. territories with a lab-confirmed ZIKV infection had a fetus or infant with birth defects through 2016-2017.<sup>14,15</sup> The latest report from the state of Texas showed 8% of pregnancy outcomes with Zika related birth defects.<sup>16</sup> This is comparable to the national rate of 5%<sup>15</sup> and earlier state reports in Spring 2017 of 10%.<sup>17</sup>

The presence of *Aedes aegypti* and *Aedes albopictus* in the Southern U.S. raised great concern about the development of a disproportionate Zika outbreak,<sup>6</sup> with potential enormous economic burden of disease and productivity losses.<sup>18</sup>

Initial modeling projected the Houston and Brownsville areas to have the greatest abundance of *Aedes aegypti* in July.<sup>19</sup> However, studies have shown that weather conditions are suitable for *Aedes aegypti* abundance in Southern Florida and Texas during winter months.<sup>20,21</sup>

ZIKV-risk assessment for Texas suggested importation risk in large metropolitan areas, while sustained transmission risk is concentrated in Southeastern counties including the Texas-Mexico border.<sup>22</sup>

#### Control measures

To follow pregnancy outcomes and provide options, screening in pregnant women is of great importance. Serologic diagnosis, however, presents challenging issues. Limited specificity, cross-reactivity with other flaviviruses, and prolonged detection of IgM antibodies in those infected with ZIKV,<sup>23</sup> makes it necessary to combine IgM testing with serum or urine PCR and ultrasound screening in asymptomatic pregnant women with exposure histories.

Protective measures against *Aedes aegypti* bites must be undertaken. These include wearing long clothing, applying mosquito repellent, window and door screens utilization, and draining standing water (where the *Aedes aegypti* lays its eggs). State and local health departments have Zika websites with recommendations for the general public and health care professionals.<sup>13,24</sup>

The U.S. CDC has posted clear guidance for physicians, health care professionals, travelers, as well as for women of reproductive age and infants.<sup>7</sup>

Physicians in high risk areas, such as the Texas-Mexico border, should be aware of the possibility of Zika and other arboviral infections. Local, state, federal, and international efforts are necessary to control the *Aedes aegypti* mosquito in the Gulf coast states and countries,<sup>25</sup> not only to prevent Zika but to reduce transmission of other viral diseases in that region.

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Continued on page 24

**Zika Virus Infection in Texas  
(Continued)**

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## AMA-MSS Interim Meeting

Amar Patel MS3

I had the opportunity to represent TTUHSC El Paso PLFSOM at the AMA Medical Student Section (AMA-MSS) Interim meeting held in Honolulu, HI. As the school delegate, I was required to review over 90 resolutions that were being considered for this meeting. Working with fellow classmates at PLFSOM as well as state, regional and national delegates through online video calls allowed for informed and collaborative discussions regarding the various topics within each resolution. These resolutions ranged from issues affecting medical students directly, such as the utilization and implementation of standardized video interviewing that was initiated for emergency medicine residency interviews but is in the process of expanding to other specialties, as well as topics affecting larger areas of healthcare such as Immigration and Customs Enforcement (ICE) entering sensitive locations.

Upon my arrival to the Aloha State, a whirlwind of meetings and dialogues commenced. Amidst the parliamentary procedures,

amendments and alterations to resolutions on the floor, and insightful and lively testimony meant to sway delegates for or against resolutions, coalitions formed and further discussions were held to encourage debate and guarantee actionable and impactful policy that would help further the missions of the AMA-MSS. Over fifty resolutions were either adopted, adopted as amended or referred for further study. Yet many others that were not adopted brought about vigorous debate and importance to those topics.

I was fortunate to also attend the AMA House of Delegates (AMA-HOD) meeting, which is the main AMA policy body, as a substitute alternate delegate. Through this experience, I was able to ascertain the full culmination of the work of the MSS. Sixteen MSS resolutions presented to the HOD received favorable outcomes, including the resolution calling for the AMA to take a firm and vocal stance against ICE agents being allowed to step foot within sensitive locations. This was a timely and impactful resolution that affects a very vulnerable population in the U.S. and especially a border town such as El Paso. Experiencing the MSS as a catalyst for creating such a stance has furthered my belief that through collaboration and cooperation, we can continually strive to create a better healthcare system.

---

Amar Patel, MS3, MD Candidate Class of 2019, Texas Tech University Health Sciences Center-Paul L. Foster School of Medicine, El Paso, Texas; AMA-MSS School Delegate.



*AMA-MSS Delegation at the AMA-HOD 2017 Interim Meeting in Honolulu, HI*

# N

NEWS

*E.P.C.M.S.*

The following is a list of new/re-instated members of the El Paso County Medical Society. Congratulations to all new members!!!

**ASSI, MUNEEER E., DO**

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**LOPEZ, JOSE A., MD**

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**DR. ACOSTA RECEIVES AWARD**

Dr. Manny Acosta received the Distinguished Chair Emeritus Award at the Border Health Caucus on September 16, 2017 at the Hyatt Lost Pines Resort. He served as the chairman for the Border Health Caucus for the past 10 years.

During that time he took numerous trips to Austin and Washington on behalf of his fellow colleagues. He served tirelessly and unselfishly.

Thank you for your service, Dr. Acosta.



**TEXAS IN CRISIS: MATERNAL MORTALITY**

*TMLT introduces new CME activity to reduce risk*

Austin, TX — Over the past 25 years, most countries around the world have made great strides in reducing the number of pregnancy-related deaths. The U.S. is not one of them.

Here, the number of maternal deaths appears to be rising. While the U.S. outspends most other wealthy countries when it comes to childbirth, it has some of the worst outcomes for mothers.<sup>1</sup>

In 2016, there were almost 29 maternal deaths for every 100,000 births in the U.S. That compares with 8 per 100,000 in Canada; 7 per 100,000 in the U.K.; and 5 per 100,000 births in Australia.<sup>2</sup> Texas has the highest U.S. maternal death rate, with a reported 35.8 deaths per 100,000 births in 2014.<sup>3</sup>

In addition to a high mortality rate in the U.S., there are more than

50,000 instances of severe injuries to mothers around the time of childbirth.<sup>3</sup>

To combat these numbers and provide physicians who care for pregnant women with real-world risk management advice, TMLT has developed a new CME course — *Case Closed: Maternal Mortality*.

This course features seven case studies involving maternal death, followed by recommendations to help physicians continue to practice safe medicine and prevent poor patient outcomes.

*Case Closed: Maternal Mortality* is available online at <https://tmlt.inreachce.com/>.

There is no cost to access the course material, but registration is required. A fee will be charged for those physicians seeking CME credit (2 hours) for the course.

**Sources**

- Centers for Disease Control and Prevention. Pregnancy Mortality Surveillance System. Available at <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pmss.html>.
- CDC Foundation. Building U.S. capacity to review and prevent maternal deaths. Available at <https://www.cdcfoundation.org/building-us-capacity-review-and-prevent-maternal-deaths>.
- McDorman MF, Declercq E, Cabral H, Morton C. Recent increases in U.S. maternal mortality rate. *Obstet Gynecol* 2016; 128: 1–10. Available at [http://d279m997dpfwgl.cloudfront.net/wp/2016/08/MacDormanM.USMatMort.OBGYN\\_2016.online.pdf](http://d279m997dpfwgl.cloudfront.net/wp/2016/08/MacDormanM.USMatMort.OBGYN_2016.online.pdf).

**DR. McCALLUM'S RECOGNITION**

The TMA Officers and Members presented Dr. Richard W. McCallum with a recognition for his four years of service to the Association's Council on Medical Education.

The Council on Medical Education coordinates TMA's medical education activities, monitors state and federal legislation, studies physician manpower, accredits continuing medical education activities, and monitors licensure and credentialing of physicians.



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