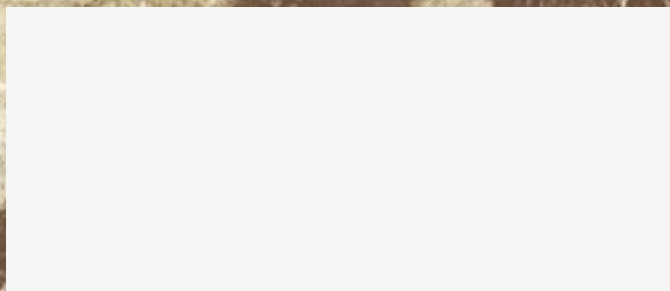




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"Petroglyph Hunting Scene"

Depicting a pig hunting scene with men and dogs.



Norman Goldstein MD, FACP Laureate
Editor Emeritus, Hawaii Medical Journal

Infections and “Unrelated” Diseases

Editor Emeritus’ Note: This editorial, written by Norman Orentreich MD, FACP, is adapted and reprinted with permission from the Orentreich Foundation for the Advancement of Science, Inc. June 2006 issue of their *VitaLongevity*.

Dr. Norman Orentreich is well known to dermatologists worldwide. Norman developed the original hair transplant procedures 50 years ago, modifications of which are still used by hair transplant dermatologists and plastic surgeons today.

Dr. Orentreich continues to practice in his very popular skin clinic in New York City with daughter Catherine and son David.

Who would think that having the common Epstein-Barr Virus (EBV) infection known as ‘mono’ could predispose one for acquiring Hodgkin’s Disease later in life? It does: 40% of people with Hodgkin’s show clear evidence of previous EBV infection.

Researchers are fascinated by well-documented, peer-reviewed findings linking infections with subsequent, seemingly unrelated diseases. Recent groundbreaking studies have uncovered an astonishing variety of infectious agents leading to other diseases: reactive arthritis from *Salmonella*, *Shigella*, *Yersinia*, and *Campylobacter*, and obesity from Adenovirus 36.

Neuropsychiatric disorders have been associated with several types of infection: *Borrelia burgdorferi* (Lyme disease); *Treponema pallidum* (syphilis); the transplacental sporozoan *Toxoplasma gondii*; and the viruses Borna, Transplacental Influenza, and Human Endogenous Retro-

Viruses in combination with Cytomegalovirus.

Using the resources of the Orentreich Foundation for the Advancement of Science (OFAS) Serum Treasury and the Kaiser Permanente databank, OFAS and its collaborators have correlated infections with subsequent disease, including links between:

- Epstein-Barr Virus and Hodgkin’s disease (1989); nasopharyngeal carcinoma (ambiguous) (1991); non-Hodgkin’s lymphoma (1991)
- *Helicobacter pylori* and gastric carcinoma (1991); gastric adenocarcinoma (1993); non-Hodgkin’s gastric lymphoma (1994, 1997); esophageal adenocarcinoma (negative, possibly protective) (2005)
- Multiple Sclerosis and *Chlamydia pneumoniae* (2004); EBV (2006)

Nine of eleven correlations were positive, i.e., the infection acted as a precursor to, not inhibitor of disease.

Covert Infections: The Invisible Threat

Microbes do not become a human health problem until they are inhaled, ingested, or allowed to enter our bodies through an open wound. Though most microbial infections are promptly noted by the presence of pus, mucous, fever, etc., lingering infections often have no perceptible symptoms.

Covert infections invade with great stealth from the beginning. Silently and cumulatively, these microbes affect tissues until they eventually produce disease – in some, but not all, cases.

Lung cancer statistics provide good illustration of this ‘sometimes, but not always’ precept; all smokers are exposed to the cell-transforming chemical mutagens in tobacco, yet only 30% develop lung cancer. What protects the other 70%? This is the essence of the conundrum facing researchers today; the chal-

lenge is to discover the unknown factors that determine whether we avoid or succumb to certain diseases.

Infections and Cancer

Infectious agents, ranging in size from sub-cellular viruses to multi-cellular parasites, can turn a cell cancerous either through years of chronic inflammation/irritation or by direct cell transformation. A covert infection's potential to cause cancer is determined by the strength and specificity of both the microbe and the individual's immune system. For example, only an adequate dose of some Human Papilloma Viruses, HPV 16/18 specifically, combined with an inadequate immuno-recognition of them seems to permit cervical cancer to develop.

The element of time is also part of the equation, though its precise role remains unclear. Take *H. pylori*, for example. Does this infection need decades to generate gastric cancer, or simply an aged immune system – or some combination of the two? To further confuse the matter, recent research indicates that *H. pylori* might actually offer protection against esophageal cancer.

Approximately 18% of new cancer cases are linked to 1.8 million viral infections each year worldwide. Antibody testing is generally available for the infections listed in the table shown, and in some cases preventive vaccines exist or are being tested.

While 1.8 million annual cases of infection-related cancer may seem alarming, the fact is that the vast majority of people with viral infections do not develop the cancers linked to them. Again we are confronted with an enigma. What protects the majority? Predisposes the minority? Can that protection be transferred or replicated? These questions are the focus of prevention-oriented public health research.

Infections and Autoimmune Diseases

The immune system's B and T cells recognize an invading microbe primarily by detecting its "foreign" protein. But microbe proteins can resemble the body's normal proteins through molecular mimicry, and some immune systems – unable to recognize invading microbes for reasons still not understood, attack the body's proteins as well as the invaders. This process continues long after the infection resolves and can be very destructive, resulting in chronic inflammation, tissue destruction, and disabilities.

Remnants of ancient viral infections in the human genome appear to be the source of Human Endogenous RetroViruses. HERVs have been linked to several autoimmune diseases, including Sjögren's syndrome, rheumatoid arthritis, type I diabetes, MS, systemic sclerosis, lupus erythematosus, and even alopecia areata and its variants. While antibodies to one or more HERV protein particles are the common factor shared by individuals with links to autoimmune disease, it has yet to be proven that any HERV is the agent responsible for the onset of the disease.

More is known about the childhood-onset disease PANDAS (Pediatric Autoimmune Neuropsychiatric Diseases Associated with Streptococcus). Extensive research has uncovered new information about the obsessive-compulsive behavior and tics that characterize PANDAS. It appears that the cycles and severity of these symptoms parallel the body's Strep A antibody levels and are often preceded by Strep A infections. PANDAS is currently the subject of intense investigation.¹⁻⁵

Current Research: Points to Remember

When appraising the research on connections between common infections and subsequent diseases, it is important to be aware of the following factors: studies are usually epidemiologic or observational; they establish correlations of statistical probability; correlations represent coincidence or causality; co-factors still undiscovered are probably essential to the processes expediting or inhibiting disease development.

Table 1.— Malignancies Linked to Specific Infections

Site or Type of Cancer	Infective Agent
Primary liver cancer	HBV
Primary liver cancer	HCV
Burkitt's lymphoma	EBV
Cervix cancer	HPV 16/18
Penis cancer	HPV
Adult T-cell leukemia	HTLV 1
Kaposi's sarcoma	HHV8
Nasopharynx cancer	EBV
Stomach cancer	<i>H. pylori</i>
Hodgkin's disease	EBV
Post-transplant lymphoma	EBV
Oro-pharynx cancer	HPV 16/18

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Note: A malignancy is a relatively rare response to an infection that is usually present in persistent form and requires co-factors.

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Patient Acceptance of Intranasal Cobalamin Gel for Vitamin B12 Replacement Therapy

Diane M. Suzuki MD, Kannayiram Alagiakrishnan MD, Kamal H. Masaki MD, Ann Okada RN, and Michael Carethers MD



Diane M. Suzuki MD



Kannayiram Alagiakrishnan MD



Kamal H. Masaki MD

Abstract

Purpose: Determine acceptance of and compliance with intranasal cobalamin (vitamin B12) replacement therapy.

Methods: Veteran subjects were recruited from VA Out-patient facilities in Hawai'i. Information was obtained by interview and medical record review. Subjects received the standard dose of intranasal cobalamin of 500 micrograms intranasally, once a week. A follow-up questionnaire was administered at one and three months of therapy.

Results: Thirty-four subjects were enrolled in the study. Ages ranged from 29 to 87 years of age, with a mean age of 68.6. Ninety-seven percent were men, 59% were Caucasian, and 35% were Asian/Pacific Islanders. At the end of three months, 30 patients had completed the study. Ninety percent preferred the gel over injection. In the subset of subjects with a history of depression, only 60% preferred intranasal gel.

Conclusion: Veteran patients tolerated intranasal cobalamin gel well. The majority of patients preferred intranasal over intramuscular injection of vitamin B12.

Introduction

Identification and treatment of vitamin B12 deficiency is important to prevent significant hematological and neurological sequelae. The prevalence of vitamin B12 deficiency in the elderly population is higher than in younger age groups, and has been estimated to be about 3-10%.¹ A study of senior center participants found almost 2% had undiagnosed pernicious anemia.² The addition of folic acid to foods may also delay recognition of vitamin B12 deficiency.³

Once a person is found to be vitamin B12 deficient, lifelong replacement is recommended. Unfortunately, sometimes physicians fail to treat patients after they are identified. In one study, only 34% of patients with low vitamin B12 levels were adequately worked up and treated.¹

A significant number of veteran patients in Hawai'i have vitamin B12 deficiency and are currently receiving IM shots, as it is the only formulation currently available on the VA formulary. Although intranasal cyanocobalamin is not on the VA formulary, it has been approved since November 1996 by the U.S. Food and

Drug Administration (FDA) for maintenance replacement therapy of vitamin B12 deficiency after adequate levels are reached by IM shots. As there are disadvantages associated with IM shots, we studied patients' preferences for an alternative route of administration of vitamin B12: intranasal vitamin B12 gel compared to their experience with IM shots.

Methods

Study Population

Participants were recruited from Veteran Affairs outpatient clinics on the islands of Oahu, Maui, and Hawaii. Patients were eligible for the study if they were receiving vitamin B12 shots for at least the past three months, and had adequate blood levels of vitamin B12 at the start of the study. Patients were excluded if they were unable to give consent for the study, scored less than 24 on the Folstein Mini Mental Status Exam (MMSE)⁴ which suggests significant cognitive impairment, had significant unstable medical or psychiatric conditions, or severe nasal obstruction. Most participants were screened by the nursing staff, and then referred to be interviewed by the study investigators. All participants gave written informed consent for the study. The study was approved by the Veteran Affairs Institutional Review Board in Honolulu.

Data Collection

During the baseline visit, participants answered a questionnaire including demographic information such as age, gender, and ethnicity. Other questions focused on pertinent medical and psychiatric history, social history, tobacco and alcohol use. The Folstein Mini Mental State Exam (MMSE)⁴ and the short Geriatric Depression Scale (GDS15)⁵ were administered to all participants, and all participants received a nasal exam. Medical records were reviewed for any past vitamin B12 levels. At the study entry participants were then instructed on the use of the intranasal vitamin B12 gel, cyanocobalamin (Nascobal, Schwarz Pharma, Inc., Milwaukee, WI) 500 mcg /0.1 mL per each actuation,

Correspondence to:
Diane M. Suzuki MD
c/o Michael Carethers MD
Department of Veterans
Affairs, Pacific Islands Health
Care System
459 Patterson Rd., (CFA)
Honolulu, HI 96819-1522
Ph: (808) 433-0214
Fax: (808) 433-0281
Email: diane.suzuki@med.
va.gov

with one actuation per week. The drug was provided free to all patients. The participants then returned for a one month follow-up appointment where they answered a questionnaire on how the gel compared with IM shots with regards to ease of use, discomfort, and preference. At three months follow-up, they again answered questions similar to the one month questionnaire and also had a vitamin B12 level drawn. Compliance was assessed by self-report; by weighing bottles at the start of the study, at one month, and at 3 months; and by measuring B12 blood levels at the end of the study.

Statistical Methods

Descriptive statistics with means and standard deviations were used for continuous variables. Chi-square analysis, Fisher's exact test, logistic regression, discriminant analysis, and Spearman Rho bi-variate correlations were performed.

Results

Participants enrolled and actively participated from December 1999 to February 2001. Thirty-four participants were enrolled. See Table 1 for baseline characteristics of the study population. The mean age was 68.6 years \pm 12.4. Ninety-seven percent of the participants were men. Fifty-eight percent were Caucasian and 35% were Asian or Pacific Islanders. The mean educational level was 12.8 years \pm 3.9. Thirty-five percent were current alcohol drinkers and 41% were former drinkers. One participant's exam showed mildly erythematous mucosa, and two participants had nasal exams missing. All other participants had a normal nasal exam. At the end of three months, 30 patients completed the study. Four participants dropped out of the study. One participant felt that the nasal gel was too messy, one participant felt that his chronic sinusitis symptoms interfered with absorption of the gel, one participant felt that the gel was too difficult to do alone, and one participant entered into an alcohol detoxification program during the study. All other participants tolerated the gel well, without any major side effects.

For the analysis, the three participants that voluntarily dropped out of the study were included as preferring IM shots. The majority of the participants preferred the intranasal gel over IM shots (Table 2). At one month follow-up, 76.5% preferred the intranasal gel over IM shots. At the end of the study at three months follow-up, 78.8% preferred the nasal gel over IM shots. Saving time by not needing to come to the clinic (96%) and the opinion that the gel worked just as well as the shot (100%) were the most frequent reasons cited by participants. Once a month administration (50%) was the most common reason for preferring IM over the nasal gel.

Twenty-nine out of 34 participants had a baseline vitamin B12 level drawn right at the beginning of the study. Of the five who did not, four had levels drawn

a few months prior to the start of the study, and one had level drawn one day after the start of the study. At the three month follow-up, 28 of 30 participants who completed the study had B12 levels drawn. Two of the participants had already requested to their clinical provider to resume IM B12 replacement prior to the end of the study, and therefore it was too late to check a blood level. B12 levels at the start and end of the study were all within normal limits. See Table 3 for serum vitamin B12 values. The participant who had the lowest B12 level at the end of the study also had the lowest B12 value at the start of the study. For some of the participants, there was a negative change in their B12 level from start to finish. This is most likely due to the fact that the time between dosing of the medication and drawing of the vitamin B12 serum levels were variable between participants. Compliance was measured by self report as well as weighing the gel bottle before use at the beginning of the study and at the end of the study (Table 4). Not all participants brought in their vial to be weighed. Also, there was a wide range in the change in vial weights at the end of use, which would appear to indicate that compliance varied between participants. At three months follow-up, all 30 participants reported using the nasal gel weekly.

Using Chi-square analysis, history of depression was significantly associated with a lower preference for the intranasal gel (Table 5). After one month, 89% of participants without a history of depression felt the nasal gel was easier to use versus IM shots, and all felt that the gel worked better. However, only 40% of participants with a history of depression felt the gel was easier to use ($p=0.04$), and none felt that it worked better ($p=0.015$). At the end of 3 months, 96% of those without a history of depression felt that the gel was easier to use and all were still currently using the nasal gel. In contrast, only 20% with a history of depression felt the gel was easier to use ($p=0.001$), and only 60% were still currently using the nasal gel ($p=0.023$).

No association between ethnicity, either by ethnic group or by grouping into two categories (whites and non-whites), and preference for B12 formulation was found. Using Spearman Rho bi-variate correlations, increasing age correlated with preference for the nasal gel, while a positive history of depression negatively correlated with preference for the nasal gel. When controlled for age, history of depression was still significant. However, after controlling for history of depression, age was no longer significant.

Discussion

The majority of the participants preferred the nasal gel over IM shots. Also, the nasal gel was well tolerated. History of depression appeared to be weakly associated with decreased preference for the nasal gel regarding ease of use, opinion of which worked better, and what they were currently using at the end of the study. A

This study was funded by a grant from the Department of Veteran Affairs. Cyanocobalamin gel (Nascobal) was donated by Schwarz Pharma Inc. The research reported in this paper was supported with resources and the use of facilities at the Department of Veterans Affairs, Pacific Islands Healthcare System, Honolulu, Hawai'i.

Author's Affiliations

- Department of Veterans Affairs, Pacific Islands Health Care System, Honolulu, Hawai'i (A.O., M.C.)
- John A. Burns School of Medicine, University of Hawai'i, Department of Geriatric Medicine, Honolulu, HI (K.H.M., M.C.)
- VA Greater Los Angeles Healthcare System, Sepulveda Ambulatory Care Center and Nursing Home, Sepulveda, California (D.M.S.)
- David Geffen School of Medicine at UCLA, Los Angeles, California (D.M.S.)
- University of Alberta, Edmonton, Canada (K.A.)

meta-analysis by DiMatteo found that depressed patients were 3 times more likely to be non-compliant with medications, had higher rates of health care utilization, and that one of the reasons for non-compliance was the opinion that the treatment did not work.⁶ Thus it is possible that participants who had a history of depression preferred more interactions with health care workers and did not benefit from being able to self-administer the medication at home.

Although the short Geriatric Depression Scale (GDS15) has been shown to be effective for assessing depression in community-dwelling elderly, in our study the GDS15 score was not associated with preference outcomes.^{7,8} Several reasons may account for this. First of all, the GDS is a screening method for depression, not a diagnostic test. Also only five patients had a score of 5 or more with the highest score of 6. A score of 5 or above is suggestive of depression. Therefore with such a small subset with a positive GDS score that just made the cutoff, it would be less likely to find statistically significant results.

Some limitations of the study include the predominance of male participants and small study size. Also use of this nasal gel preparation requires a minimal amount of manual dexterity and the ability to remember to instill it once a week. One of the patients did not adequately prime the nasal gel bottle and as a result he was unable to use the medication.

Strengths of the study include the significant proportion of Asian and Pacific Islander study participants. More importantly to the best of our knowledge, this is the only published study evaluating patient preference for intranasal vitamin B12 replacement in real life patients in an outpatient clinic. There are few studies in the literature that investigate patient preference for any nasal preparation. A study by Lopes compared two estrogen replacement modalities: intranasal versus transdermal route. A total of 361 participants received one route for the first half of the study, and then switched to the other route for the second half of the study. At the end of the study, the majority of participants preferred the intranasal route over the transdermal route.⁹

The most common route of B12 replacement is by intramuscular injection (IM), 1000 mcg once a month. However, IM injections cause pain, require a health professional to administer it, very often involves transportation cost and time, clinic nursing time, as well as additional cost of syringes and alcohol swabs.¹⁰ Thus alternative formulations are also in use. Oral administration has been studied but its use remains controversial. Studies done in the 1950s and 1960s have looked at absorption of vitamin B12. It is believed that about 1% of an oral dose is absorbed.¹¹ One study showed that doses oral of 1000 mcg a day and higher are needed to maintain consistent adequate serum levels.¹² In a study by Kuzminski, 38 patients with newly diagnosed cobalamin deficiency were studied. This study found that

Table 1.— Baseline Characteristics of the Study Population				
Variable	Frequency	Percent	Range	Mean +/- SD
Medical conditions				
Pernicious anemia	5	14.7%		
Malabsorption	1	2.9%		
Atrophic gastritis	0	0%		
Proton pump inhibitor	3	8.8%		
Gastrectomy	3	9.1%		
Ileostomy	2	6.1%		
Depression	7	20.6%		
Hay fever	0	0%		
Sinusitis	4	11.8%		
Allergic rhinitis	0	0%		
Nasal polyps	0	0%		
Vegetarian diet	3	8.8%		
MMSE* score			25-30	28.8 +/-1.5
GDS* score			0-6	2.3 +/-1.8

* MMSE= Mini Mental State Exam, possible scores 0-30, with 30 being perfect.

GDS= Geriatric Depression Scale, possible scores 0-15, with scores over 5 suggestive of depression.

Table 2.— Results at Follow-up				
Results at 1 Month Follow-up*		Response # (%)		
Outcome Variables	Nasal Gel	IM Shot	Equal	Neither
Easier to use	19 (55.9)	7 (20.6)	8 (23.5)	0
Greater discomfort	4 (11.8)	16 (47.1)	8 (23.5)	6 (17.6)
Works better	10 (29.4)	4 (11.8)	20 (58.8)	0
Prefer to use	26 (76.5)	8 (23.5)	0	0
*N=34. Assumes 2 who dropped out would pick IM over nasal gel				
Results at 3 Months Follow-up**		Response # (%)		
Outcome Variables	Nasal Gel	IM Shot	Equal	Neither
Easier to use	24 (72.7)	8 (24.2)	1 (3.0)	0
Greater discomfort	3 (9.1)	11 (33.3)	8 (24.2)	11 (33.3)
Works better	16 (48.5)	4 (12.1)	13 (39.4)	0
Prefer to use	26 (78.8)	7 (21.2)	0	0
**N=33. Assumes 3/4 drop outs would pick IM shots over nasal gel				

Table 3.— Vitamin B12 Levels*			
	Range mg/ml	Mean +/- SD	N
B12 level at baseline	263-2000	790.7 +/- 419.4	34
B12 level at 3 months	191-2337	603.2 +/- 388.9	28
B12 level difference	-157 to 1414	-94.8 +/- 377.3	28

*(Reference range 188-1059 pg/ml)

Table 4.— Change in Weights of Vitamin B12 Nasal Gel Vials				
Vial		Mean +/- SD (grams)	Range (grams)	N
1	Baseline	32.8 +/- 0.45	31.8 - 34.0	34
	Change	0.97 +/- 0.43	0.28 - 2.07	28
2	Baseline	33.0 +/- 0.34	32.4 - 33.8	29
	Change	1.5 +/- 0.62	0.33 - 2.64	27

Table 5.— Participants Who Preferred Nasal Gel, Stratified by History of Depression

Results at 1 Month Follow-up			
Outcome	No History of Depression	History of Depression	Fisher's Exact Test P Value
Gel easier to use	17/19 (89%)	2/5 (40%)	0.0425
Gel worked better	10/10 (100%)	0/2 (0%)	0.0152
Preferred gel	23/26 (88%)	3/6 (50%)	0.0629
Would continue using gel	25/26 (96%)	4/6 (67%)	0.0827
Results at 3 Months Follow-up			
Outcome	No History of Depression	History of Depression	Fisher's Exact Test P Value
Gel easier to use	23/24 (96%)	1/5 (20%)	0.001
Currently using nasal gel	25/25 (100%)	3/5 (60%)	0.023
Preferred gel	23/24 (96%)	3/5 (60%)	0.0684
Would want to continue using gel	23/24 (96%)	3/5 (60%)	0.0684

patients receiving 2000 mcg of oral cobalamin had comparable results to those receiving IM shots.¹¹ However, in a commentary on the study, it was pointed out that a high percentage of the study patients likely had normal absorption of vitamin B12, and therefore their blood levels should be normal.¹³ A recent double-blind, placebo-controlled study by Seal randomized 31 inpatients to three groups: placebo, 10 mcg oral cyanocobalamin, or 50 mcg oral cyanocobalamin daily. Although participants supplemented with 50 mcg had a significant increase in their serum vitamin B12 levels compared with placebo, not all participants had a significant rise. In addition, the etiology for a low vitamin B12 level was not elucidated. The authors however, concluded that the majority of the participants most likely had vitamin B12 deficiency secondary to deficient dietary intake.¹⁴ Intranasal hydroxocobalamin spray and intranasal cyanocobalamin gel have been available at health food stores for many years. A study by Slot et al. looked at six patients with small bowel disease and vitamin B12 deficiency.¹⁵ Participants received 1500 mcg of hydroxocobalamin weekly via a metered dose intranasal spray and plasma cobalamin levels were drawn. After 35 days follow-up, cobalamin levels significantly increased. Nascobal (Cyanocobalamin, USP) gel for intranasal administration, which is approved by the FDA for maintenance replacement therapy of vitamin B12 deficiency, reached peak concentrations after 1-2 hours with an average peak of 1414 +/- 1003 pg/mL. Bioavailability of Nascobal compared to intramuscular injection is 8.9%.¹⁶ According to data submitted for its FDA approval, administration of intranasal cyanocobalamin gel produced significantly higher peak plasma increments over baseline compared with oral administration, 1177pg/mL versus 130pg/mL, respectively.¹⁷

Conclusion

The majority of participants in the study preferred the intranasal gel replacement therapy over IM injections. For cognitively intact compliant patients or those who have a caregiver who could administer medications for them, intranasal cobalamin gel is a reasonable alternative to intramuscular injection. Intranasal vitamin B12 gel was well tolerated.

For patients with vitamin B12 deficiency, three routes of administration for maintenance therapy are currently available: intramuscular injection, oral, and intranasal gel. Intramuscular injection is the current standard of care for replacement.

Thus for patients who do not have easy access to a clinic or health care provider or dislike shots, a route that can be taken at home with minimal discomfort would be more ideal. As oral replacement of vitamin B12 is still controversial,¹³ intranasal gel would be a good choice for compliant patients with minimal intranasal disease.

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57-Year-old Asian-American Man with Kikuchi's Disease

Deryll U. Ambrocio MD and David John MD

Abstract

Kikuchi's Disease (KD) is a subacute necrotizing lymphadenitis more commonly reported from Asia. The classic presentation includes low-grade fever and cervical lymphadenopathy in a previously healthy woman. The ratio of affected women to men is 4:1 with the average age of onset less than 30 years.¹ We report a case of KD in a 57-year-old Asian-American man whose presentation is associated with Adult Still's Disease.

Introduction

Kikuchi's disease was first reported in 1972 in Japan by Kikuchi, Fujimoto and his colleagues. An idiopathic, self-limiting disease, KD is characterized by fever, painless predominantly cervical lymphadenopathy, and flu-like symptoms. An elevated ESR, leukopenia and hepatomegaly are also common. Fever that is typically low-grade is a primary symptom in 30 to 50 percent of patients.² Systemic symptoms include weight loss, nausea, vomiting, and diarrhea. Extranodal involvement of the liver, spleen, and skin, while unusual, has been well documented, especially in Asia.³ Skin manifestations have been described, including a transient rash,⁴ which is also typical of Adult Still's Disease. The clinicopathologic diagnosis of KD is made in the presence of histiocytic necrotizing lymphadenitis on histological examination. KD may clinically and histologically mimic many diseases including systemic lupus erythematosus and high-grade lymphoma, including Hodgkin's Disease.^{3,5} In addition, KD has been associated with subacute lymphocytic thyroiditis⁶ and Adult Still's Disease.^{7,8,9}

We discuss a case of a patient with Adult Still's Disease who also presented with biopsy-proven KD. We review the literature on KD, and emphasize the need to consider this diagnosis in patients who present with lymphadenopathies and fever of unknown origin.

Case Report

A 57-year-old Japanese-American man was well until three weeks before admission when he had developed bilateral arthralgias of his fourth and fifth proximal interphalangeal (PIP) and distal interphalangeal (DIP) joints and his primary care physician prescribed rofecoxib for pain relief. Three days later, his symptoms progressed, by which time he developed a transient

maculopapular salmon-pink rash on his face, palms, arms, and trunk. The rash was non-pruritic, associated with fever and exhibited the Koebner phenomenon, in this instance precipitated by warm showers and rubbing. On subsequent follow-up, he developed a fever of 101°F and symmetrical polyarticular arthritis, primarily affecting his knees and feet.

The patient continued to take rofecoxib until he was referred to an infectious disease specialist who discontinued it in light of his progressive symptoms. A drug reaction to rofecoxib was suspected. Cetirizine 10mg once daily was given but despite discontinuing rofecoxib and taking cetirizine, the patient continued to have arthritis, persistent fevers which peaked at 102.8°F, malaise, and a recurrent rash on his palms, soles, arms, proximal lower extremities, trunk, and lower back. He had also developed mild periorbital, nasolabial, and perioral edema. On presentation to the hospital, physical exam revealed cervical lymphadenopathy, concerning for lymphoma.

Laboratory data while in the hospital revealed WBC 12.4 with 90% neutrophils and 7% lymphocytes, ESR 37, fibrinogen 771, and CH50 335 (nl: 101-300). Rheumatoid factor, ANA, anti-Ro, anti-La, c-ANCA, anti-dsDNA, anti-ENA, and HIV test by ELIZA were all negative. His chest x-ray was unremarkable. A biopsy of one cervical lymph node was obtained and a sample of the specimen was sent for AFB studies. Both AFB stain and culture were negative. The pathology of the specimen was consistent with KD.

The patient was followed in the outpatient setting subsequent to discharge and was started on prednisone 20mg daily and ibuprofen 600mg three times daily as needed for pain. The rash and fevers resolved one week after starting prednisone and ibuprofen. His arthritis completely resolved after a three-month prednisone taper.

Discussion

Our patient was diagnosed with histiocytic necrotizing lymphadenitis on lymph node biopsy. Prior to the lymph node biopsy, the patient was felt to have Adult Still's Disease, based on the criteria proposed by Yamaguchi et al.¹⁰ These criteria are 96.2% sensitive and 92.1% specific, and require the presence of 5 or

Authors' Affiliation:
Department of Internal
Medicine, University of Hawai'i
John A. Burns School of
Medicine, Honolulu, HI 96813

Correspondence to:
Deryll U. Ambrocio MD
University of Hawai'i Internal
Medicine Residency Program
1356 Lusitana St., 7th Floor
Honolulu, HI 96813-2427
Phone: (808)586-7482
Fax: (808)586-7486
Email: dambrocio@gmail.com

Table 1. — Preliminary criteria for a classification of Adult Still's Disease

Major criteria
1. Fever of 39°C or higher, lasting 1 week or longer
2. Arthralgia lasting 2 weeks or longer
3. Typical rash*
4. Leukocytosis (10,000/mm ³ or greater) including 80% or more of granulocytes
Minor criteria
1. Sore throat
2. Lymphadenopathy and /or splenomegaly**
3. Liver dysfunction***
4. Negative RF and negative ANA****
Exclusions
1. Infections (especially, sepsis and infectious mononucleosis)
2. Malignancies (especially, malignant lymphoma)
3. Rheumatic diseases (especially, polyarteritis nodosa and rheumatoid vasculitis with extraarticular features)

* Macular or maculopapular nonpruritic salmon-pink eruption usually appearing during fever.

** Lymphadenopathy is defined as recent development of significant lymph node swelling, and splenomegaly is confirmed on palpation or by an echogram.

*** Liver dysfunction is defined as an abnormally elevated level of transaminases and/or lactate dehydrogenase, which is attributed to liver damage associated with this disease but not with drug allergy/toxicity or other causes. For the differentiation, it is recommended to see if liver function returns to normal upon discontinuation of hepatotoxic drug or not, before applying this criterion.

**** RF in serum must be negative by routine test for the detection of IgM RF, and serum ANA must be negative by routine immunofluorescence test.

more criteria, which should include two or more major criteria. (Table 1)

After obtaining the biopsy results, the diagnosis was modified to Adult Still's Disease associated with histiocytic necrotizing lymphadenitis. Review of the literature revealed a handful of cases documenting this association, including cases from Japan and France reported by Ohta et al.⁸ and Cousin et al.,⁷ respectively. Typical histiopathologic findings in KD include patchy areas of necrosis associated with significant karyorrhexias or nuclear debris with aggregates of crescentic histiocytes, plasmacytoid monocytes, and immunoblasts (see Figure 1). The histiocytes often display phagocytosis of the nuclear fragments and eosinophilic granules.⁹ Neutrophilic infiltration, as seen in cat scratch disease, for example, is absent. It has been proposed that KD has three stages based on histologic findings: proliferative, necrotic, and recovery.¹¹ In comparison to KD, histological findings in Adult Still's Disease are nonspecific with reactive hyperplasia, polymorphous cellular infiltration, and absence of necrotic characteristics.¹²

In Adult Still's Disease and KD, the etiologies are unknown but viruses such as EBV, CMV, and HSV6 have been implicated. The pathophysiology of both diseases is associated with abnormalities in the host immune reactions which are triggered by antigenic stimuli. Ohta et al. suggest that KD, Adult Still's Disease, and SLE could have an identical pathogenesis caused by certain infectious agents and modulated by host immunity.^{7,8} Although neither the role nor trigger of apoptosis has been clearly determined, multiple studies show that apoptotic cell death plays a role in the pathogenesis of KD.¹¹

Iguchi et al.¹¹ have confirmed the occurrence of apoptotic cell death in affected areas by detection of DNA fragmentation. They examined a lymph node from a woman with KD using an ultrastructural approach with transmission electron microscopy (TEM). TEM revealed specific morphological features of apoptotic cells, such as nuclear chromatin condensation and fragmentation along the nuclear membrane with intact organelles, and the presence of histiocytes phagocytosing karyorrhectic debris. The apoptotic cell death mediated by cytotoxic CD8-positive T cells is the principal mechanism of cellular destruction. Histiocytes may enhance this process. The apoptosis appears to be induced by the Fas-Fas ligand system as manifested by the presence of Fas ligand in the affected areas.¹⁴

In KD, oral steroid or antibiotic treatment do not influence the course of the disease, which improves spontaneously in a few months.⁷ Although there is no specific treatment to date, one role of the physician is to provide symptomatic treatment as the clinical manifestations may be very distressing for some patients. Jang et al.¹³ reports three cases of Kikuchi's Disease in which the patients benefited from prednisone administration. In this series, prednisone was only used if the

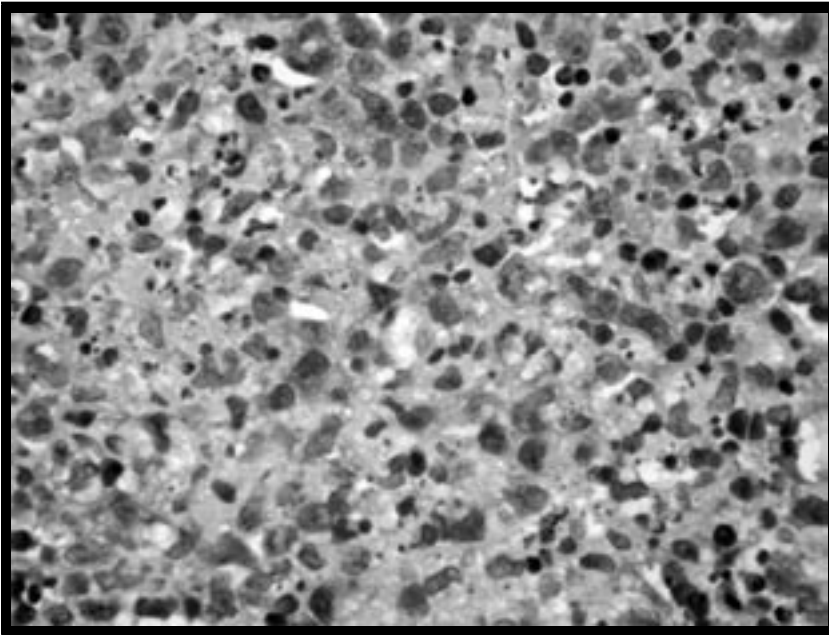


Figure 1.— Typical histiopathologic findings reveal patchy areas of necrosis, significant karyorrhexias and crescentic histiocytes, plasmacytoid monocytes and immunoblasts.

patient's symptoms did not improve after a course of NSAIDs, if there was recurrence of disease, or if the patient demanded quick relief to avoid missing too many workdays. In earlier reports, glucocorticoid administration was limited only to complicated cases of Kikuchi's disease such as those associated with brachial plexus neuritis and SLE.¹³

This patient was treated with NSAIDs since being admitted to the hospital and, once biopsy results were obtained, was started on prednisone 20mg daily. Prednisone was started because of the persistent fevers, polyarthritis, and association with Adult Still's Disease, which is responsive to glucocorticoid therapy. The rash and polyarthritis resolved being treated with a course of prednisone.

Kikuchi's Disease and Adult's Still's Disease should be considered in the differential diagnosis of patients presenting with fever of unknown origin and lymphadenopathies. Lymph node biopsies can be diagnostic of KD and may be necessary to rule out lymphoma. Because there are reports of patients with Kikuchi's Disease developing SLE years later, it has been suggested that these patients require regular follow-up after a diagnosis of Kikuchi's Disease.

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Physicians' Willingness and Barriers to Considering Cost When Prescribing

Chien-Wen Tseng MD, MPH, Lee Buenconsejo-Lum MD, Luella Manlucu, and Allen Hixon MD



Chien-Wen Tseng MD, MPH



Lee Buenconsejo-Lum MD



Luella Manlucu



Allen Hixon MD

Abstract

Many patients have difficulty affording medication. This pilot study examined physicians' willingness and barriers to considering cost when prescribing. Of 54 physicians surveyed, nearly all said considering cost was important (98%) but many reported lacking formulary (65%) or copayment information (59%). Insurers can help physicians by providing easy access to drug coverage information at the point of prescribing.

Introduction

The high cost of medications is one of the main contributors to rising health care costs nationally.¹ In 2003, prescription drug spending reached over \$179 billion dollars.¹ High out-of-pocket medication costs can also have a significant impact on patients.² One in 3 patients say it is difficult to pay for their medication and 1 in 4 patients say that they or someone in their household did not fill a prescription, cut pills, or skipped medication doses in the last year because of cost.² Such medication cost-cutting often affects the treatment of serious health conditions such as hypertension, diabetes, depression, and asthma,³⁻⁶ which in turn can increase hospitalization rates and worsen morbidity and mortality.^{7,8} People who are poor, elderly, or have many health problems are most vulnerable.²⁻⁸ However even people with insurance can be affected by high cost-sharing for their medications.^{2,4-8}

Understandably, patients look to physicians for help with drug costs. Physicians are the main writers of prescriptions. In addition, physicians work with patients to decide which medication treatments are best for them. For patients who have difficulty paying for medications, this can mean looking for lower cost medications that might work just as well for them. Patients report that they wish for physicians to discuss medication costs with them,⁹ and often find such conversations useful.¹⁰ Therefore physicians must be key players in any long-term solution to make medications affordable. However, only 1 in 7 patients say that physicians have discussed out-of-pocket costs with them.¹¹ Understanding why these conversations may not occur is important to helping make medications affordable to patients and decreasing their risk for not using medications because of cost.

There have been few studies of why physicians do not discuss costs with patients.¹² The problem may be one of attitude, where physicians are unwilling to discuss costs with patients (e.g. do not think it is important). The problem can also be one of system barriers that are not under physician control, such as dealing with multiple formularies and drug benefits, or the lack of less expensive options within treatment classes that make it difficult for physicians to find lower cost but effective medications. This pilot study surveyed physicians attending the Hawai'i Academy of Family Physicians Annual Meeting to examine whether barriers to physicians considering cost when prescribing is primarily one of physicians' willingness to do so, or one of system barriers that physicians face. The problem of medication costs is critical in Hawai'i, where nearly 20% or 204,000 people have no drug coverage,¹³ and 1 in 4 residents who use prescription medications say they have cut back on medications or not filled prescriptions because of cost.¹⁴ These findings can help inform patients, physicians, and insurers of what may be done so that physicians can help patients with medication costs.

Methods

The study was conducted at the 2005 Hawai'i Academy of Family Physicians Annual Meeting. All physicians attending the meeting who practiced in Hawai'i were eligible to participate. Physicians who completed the five-minute written questionnaire were given a \$5 gift card to compensate them for their time. Physicians were asked: 1) How important is it for you to consider the cost of a medication to your patient when you choose which medication to prescribe, 2) Which of the following makes it difficult for you to consider the cost of a drug to your patient when you are choosing a medication (circle all that apply) - not enough time, do not know copayment, do not know which drug is on the formulary, do not know which drugs have been tried, do not know when there are less expensive drugs that may work, do not know which of my patients want me to think about cost, and 3) How often do you talk to patients about the price of a medication when you write a prescription.

Correspondence to:
Chien-Wen Tseng MD, MPH
846 S. Hotel St., Suite 303
Honolulu, HI 96813
Ph: (808) 524-4411
Fax: (808) 524-5559
Email: cwtseeng@hawaii.edu



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Results

A total of 54 physicians completed the survey. Participants were on average 42 years old, 44% were female, and 48% were in practice groups of 10 or more (Table 1). The physicians came from a variety of practice settings including private practice (44%), Academic (28%), and Kaiser (17%). More than two-thirds of participants (69%) reported having to deal with 3 or more formularies in their practice. The vast majority of participants indicated that some (50%), most (30%), or nearly all (11%) of their patients had difficulty paying for medications.

Willingness and barriers to considering cost

Nearly all participants said it was important (61% “very”, 35% “somewhat”) for them to consider the cost of a medication to their patient when choosing which medication to prescribe (Table 2). However, many physicians indicated that there were barriers to considering cost when prescribing. The main barriers reported were not knowing what a formulary covered (65%), not knowing a patients’ copayment (59%), lack of time (46%), and not knowing less expensive but effective options (35%). Few said that not knowing which patients wanted them to think about cost (19%) or not knowing which drugs had been tried (13%) was a barrier to considering cost when prescribing. Physicians who dealt with three or more formularies (two-thirds of participants), versus physicians who dealt with only one or two formularies, were much more likely to say that barriers to considering cost were not knowing formulary coverage (89% vs. 12%) and not knowing copayments (81% vs. 12%).

Communication about cost

Less than half of physicians said that they talked to their patients about medication prices when writing a prescription most of the time (33%) or all of the time (6%). The majority said they talked to patients only sometimes (57%) or none of the time (4%). Physicians’ reports of whether they discussed prices with their patients were similar across practice settings.

Discussion

In this study, physicians indicate that they have the “will” but not the “way” to consider medication costs to patients when prescribing. Patients should find it good news that 52 of 54 physicians who participated in this study considered it important to think about costs for their patients when prescribing, a task which takes additional time. Health plans and insurers should be aware that physicians reported that not knowing formulary and copayment information were significant barriers that prevented them from discussing these issues with patients. Ways could be found to help provide physicians with easy access to formulary information at the point

Table 1.— Participant Demographics (n=54)

How many physicians are in your practice?	
1 to 5	30%
6 to 10	23%
11 to 20	23%
> 21	25%
What is your main practice setting?	
Kaiser	17%
VA	6%
Private	44%
University	28%
Other (state (1), state prison (1) Tripler residency (1))	6%
Age (mean)	42 years
Woman	44%
How many formularies do you deal with on average?	
1 to 2	31%
3 to 5	43%
6 to 10	19%
> 10	7%
What percentage of your patients have difficulty paying for medications?	
very few	9%
some	50%
most	30%
nearly all	11%

Table 2.— Physician’s willingness and barriers to considering cost when prescribing

1. How important is it for you to consider the cost of a medication to your patient when you choose which medication to prescribe?	
Very important	61%
Somewhat important	35%
Neither	2%
Somewhat unimportant	2%
Very unimportant	0%
2. Which of the following makes it difficult for you to consider the cost of a drug to your patient when you are choosing a medication?	
Not knowing formulary	65%
Not knowing patient’s copayment	59%
Lack of time	46%
Not knowing less expensive but effective drug options	35%
Not knowing which patients want me to think about cost	19%
Not knowing which drugs have been tried	13%
3. How often do you talk to patients about the price of a medication when you write a prescription?	
None of the time	4%
Sometimes	57%
Most of the time	33%
All of the time	6%

of prescribing. While electronic prescribing makes it possible for physicians to know this information, most physicians do not utilize this tool. For physicians without electronic prescribing, formulary coverage is available by internet or in hardcopy. However, most physicians must deal with multiple formularies and lack the time to look up drug coverage for each drug and each patient. Some formularies also change quarterly or more frequently, making it difficult to keep up to date about which drugs are covered. Often physicians write prescriptions and do not find out until patients reach the pharmacy that the drug is not covered by insurance or has higher copayments. While generic medications are usually well-covered, not all drug treatment classes (e.g. Angiotensin II Receptor Blockers) have generic drugs available within the class. At times, it is difficult to know which drug is commonly covered by most insurers. Currently the Department of Family Medicine and Community Health at the University of Hawai'i John A. Burns School of Medicine is addressing this problem by creating a "smart prescribing guide" Web site that compiles formulary coverage information for commonly prescribed drugs (e.g. anti-hypertensives) for several major insurers in Hawai'i.

Physicians in this study also indicated they often did not know patients' copayments. It would be important for health insurers to find a way to provide physicians with this information at the point of prescribing. One way would be to print the patients' copayments for 1) preferred generic and 2) preferred brand-name drugs on their insurance card. Although there may be more than two copayment tiers (e.g. non-preferred brand-name drugs), most commonly prescribed medications are likely to fall into these two categories. Even having this simple information may assist patients and physicians alike in considering cost when choosing medication treatment options.

In this study, only half of the physicians discussed medication prices with patients most or all of the time. This is similar to other previous studies indicating that few patients say their physicians discussed cost although most wish their doctors to do so.⁹ Even if physicians do not know how much a drug will cost, they can still ask their patients if they can afford their current medications or if they find it difficult to pay for their medications. This would help physicians to focus their limited time on patients who have the most difficulty paying for medications, since looking for lower cost options can be labor-intensive. Taking the time to ask about affordability and discuss cost with patients may help increase patients' medication adherence, lower patients' risk for harmful effects from stopping important medications, and help to improve patient satisfaction.

This study was limited in that it was a convenience sample of 54 physicians recruited from the Hawai'i Academy of Family Physicians Annual Meeting. Our intent is to replicate this survey on a nationwide sample. The physicians in our survey did come from a wide variety of practice settings including private practice, Kaiser, Veterans Administration, and Academic settings. Physicians' willingness to consider cost when prescribing was similar across all practice settings.

Conclusions

The results of this study are encouraging in that physicians reported a high willingness to consider cost when prescribing. In addition, the main barriers that they reported of not knowing formulary or copayment information are solvable. If insurers can provide such

drug benefit information to physicians at the point of prescribing, physicians can play a key role in helping make medications more affordable for patients.

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The Training in Speech-Language Pathology at The John A. Burns School of Medicine

Randy Weirather PhD
Assistant Professor, Speech Pathology and Audiology
John A. Burns School of Medicine
University of Hawai'i

Speech-language pathology is projected to be one of the fastest growing health professions in the next decade.¹ There are 1.3 million children (ages 3-21) needing speech-language pathology services in the United States.² Overall, it is estimated that 14 million U.S. citizens have some sort of communication disorder, and 15 million with some degree of dysphagia.³ As the population over age 65 increases, so will the incidence of these disorders. Unfortunately, the single greatest employer in Hawai'i, the Department of Education, currently has approximately 50 vacancies, and expects this number to rise with retirements. Until recent times, the Speech Pathology program has had a fairly small graduating class of only 12-15 students.

The discrepancy between need and student production has resulted in a shortage of personnel which is consistent with national trends. This shortage was one of many complaints resulting in the Felix Consent Decree, a court agreement with the State of Hawai'i to address shortcomings in the provision of special education. A State response was to look to the University of Hawai'i Division of Speech Pathology and Audiology to address this issue. Historically, the production of graduates had been less than adequate to meet state needs.

Since 1998, the Division has maintained a memorandum of agreement with the Hawai'i Department of Education with an influx of roughly \$1,000,000 per annum to support growth of the student body, and to fund students with financial incentives (\$13,000-\$17,000) to enter the field. Some of these students have been drawn from other areas within the system of medical education, particularly nursing and psychology. At its peak, graduate student enrollment numbered nearly 80 students in 2002, over three times its historical average.

Of the nearly 250 training programs for speech-language pathology (SLP) in the nation, only one sits in the midst of the Pacific Basin. It is a program within the John A. Burns School of Medicine at the University of Hawai'i. With both an undergraduate BS and graduate MS program, the program produces students for both medical and nonmedical employment venues, especially for the State of Hawai'i. Fifty-three percent of SLPs work in school settings.⁴ The program provides all students with a firm background in medical issues to support patient management in medical settings, especially with pediatricians, otolaryngologists, physiatrists, and neurologists. In accordance with national trends to increase competence in medically-related issues at the graduate level,⁵ the program focuses on areas of dysphagia, TBI, ventilator-tracheostomy care, craniofacial anomalies, voice disorders, and augmentative communication devices. Students learn to conduct FEES (fiberoptic endoscopic evaluation of the swallow) and to assist with videofluoroscopic evaluations of swallows with radiology. Also, they gain experience

with instrumental measurements of voice (nasality, fundamental frequency, and pitch perturbations).

In the noninstrumental domain, there are numerous reliable and valid standardized tests for assessment of cognition, speech and language of patients with aphasia, TBI, language and learning disabilities, dementia, and other communicative disorders. In addition, graduates are well positioned to assist physicians in determining behavioral outcomes of pharmaceutical interventions. For example, the *Arizona Battery for Communication Disorders of Dementia*⁶ might be used to document responsiveness to newer drugs for dementia. Students are also exposed to genetics, especially in the role of a referral source to genetic counselors for hearing loss where genetic issues are prominent.⁷ Finally, they are familiar with the same laws that effect physicians; especially, ADA, Section 504 of the Vocational Rehabilitation Act, IDEA, and HIPAA.

Students are trained in both a direct rehabilitative and collaborative or consultative role and are expected to be a member of a team. Of importance is the integration of their participation into medical education by more than just administrative housing of the Division within the School of Medicine. Efforts are being made to expose potential medical students to the scope and role of speech pathology by participation in the Health Professions Summer Institute (a joint venture with Hawai'i/Pacific Basin AHEC, the Science Education Partnership Award (SEPA), the Hawai'i Department of Education (DOE), and Kamehameha Schools). The program exposes high school students to health career fields.

In the past, the Division of Speech-Language Pathology and Audiology also provided faculty to LEND (Leadership Education in Neurodevelopmental and Related Disabilities), a Maternal and Child Health program of the Center on Disability Studies at UH that targets interdisciplinary leadership in health care for a variety of advanced students in the health professions. Speech-language pathology students also participate in medical settings shared with the School of Medicine. In addition to work in the classrooms, students in the graduate track must complete several externships, typically at hospital sites in Hawai'i. They are the rehabilitation departments of Kaiser Foundation Hospital, Kapiolani Medical Center for Women and Children, Queen's Medical Center, Rehabilitation Hospital of the Pacific, Tripler Army Medical Center, as well as DOE schools and the Scottish Rite Children's Center of Honolulu.

Speech-language pathology is active in outcomes-based treatment.⁸ The focus is on treatment efficacy and especially functional and meaningful outcomes for patients, not just comparisons of confidence intervals of pre- and post-test standardized scores. The data for efficacy continues to emerge and appears promising,⁸

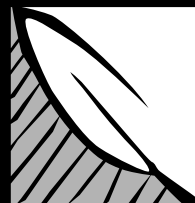
especially in dysphagia services.⁹ The pursuit of efficacy is seen at on-campus clinics. The accrediting agency for speech-language pathology requires that students receive a minimum of 375 supervised hours of client contact before graduation. As part of its training program, the Division provides a community service of diagnostics and therapy at reduced cost. Services are tailored to populations that physicians may diagnose. These include autism, mental retardation, cerebral palsy, learning disability, ADHD, TBI, stroke, laryngeal cancer, vocal nodules, Parkinsonism, dementia, and substance abused children.

Communication is a foundation for learning and social behavior. Deficits lead to failure in school, higher rates of delinquency, social misconduct, bad conduct discharges from the military, and even incarceration. Because communication is the most commonly occurring volitional behavior, and because it takes an entire childhood to learn well, it is easily disrupted with catastrophic effects. And because communication disorders affect the interaction of more than one person, the disorder commonly undermines the exchange of information between family members, a child and teacher, or a patient and physician. As a result, therapy may target both the patient and the interactant, including the physician and other medical staff, especially nurses and Certified Nurse Assistants. This approach involves the physician as one of the interactants, especially with respect to cognitive, language, and pragmatic disorders (pertaining to the appropriate social use of language).

The program is anxious to expand a working relationship with other elements of the school of Medicine, increase enrollment, and integrate the knowledge base of its current students with that of medical students so that they can graduate with an assumption of collaboration rather than a process of discovery once in the field.

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Comprehensive Cancer Control in the U.S. Associated Pacific Island Nations

Lee Buenconsejo-Lum MD, Vanessa S. Wong MD, and Neal A. Palafox MD, MPH
Department of Family Medicine and Community Health,
John A. Burns School of Medicine, University of Hawai'i

The U.S. Associated Pacific Island Nations (USAPIN) consist of a commonwealth, two flag territories and three freely associated states (FAS): The Commonwealth of the Northern Mariana Islands (CNMI), flag territories of American Samoa and Guam; and the FAS of the Federated States of Micronesia (FSM) (which consists of the states of Kosrae, Pohnpei, Chuuk, and Yap), The Republic of the Marshall Islands (RMI), and the Republic of Palau (ROP). These Pacific nations have been colonized by Spain, Germany, Japan, Britain, France, and/or the United States since the 17th century. American Samoa and Guam became unincorporated territories of the United States after 1898. Following World War II, the CNMI, ROP, RMI, and FSM were managed by the United States under United Nations Trusteeship as the Trust Territories of the Pacific Islands (TTPI). The United Nations mandate to the United States included responsibility for the health, education and welfare of the peoples of the TTPI.¹ The ROP, FSM, and RMI entered into new political relationships with the United States, negotiated as Compacts of Free Association between 1986 and 1992. Both the Trusteeship and the Compacts of Free Association failed to achieve adequate levels of health care and education due to an inadequate investment of resources. The infrastructure necessary to achieve a self-sufficient governance and economy was not developed.²

Health Status and Infrastructure in the U.S. Associated Pacific

Despite being commonwealths, flag territories and FAS of the United States, tremendous health disparities exist between the USAPIN and the United States. Each USAPIN is in a different phase of epidemiologic transition from infectious diseases to chronic diseases. There is an increased prevalence of diseases from man-made environmental hazards and from adoption of western lifestyles. Both communicable diseases and non-communicable diseases contribute to morbidity and rising health costs. In addition to a heavy cancer burden, the FAS have high infant mortality rates – 4 to 6 times higher than the United States – and life expectancies are 9 to 12 years lower than in the United States.³ The RMI and FSM have been designated by UNICEF as areas of “special need” in the Pacific because of malnutrition, vitamin A-deficiency, and high infant mortality rates.⁴ As more chronic diseases prevail, cancer has become a leading cause of mortality in all of the USAPIN.⁵

Challenges with health infrastructure, resources, and workforce capacity have prompted the need for coordinated regional efforts toward reducing the burden of cancer. In 2003, the health expenditure per capita in the US was \$5,635⁶ whereas in 2002, the FSM spent \$87 per capita on health expenditures.⁷ Currently several of the USAPINs have limited capacity for cancer surveillance, cancer

prevention, early detection, or treatment programs. All locations need to improve the efficacy of current cancer screening programs and treatment options. The capacity to collect accurate cancer-related data is limited⁸ in most settings. Cancer data collection methods and policies vary widely.⁹ There is no access to high-speed internet connection in most countries and/or limited access to personal computers¹⁰ which hampers distance education efforts and access to current information regarding cancer control and prevention.

Leveraging Resources for Cancer Control Efforts in the Pacific: Phase 1

Regional cancer awareness efforts and advocacy were underway by the mid 90s. In 2002, the Center to Reduce Cancer Health Disparities, under the direction of Dr. Harold Freeman, and the NIH National Center on Minority Health Disparities provided financial resources in response to Pacific advocates requests. The NCI and NIH resources were utilized to form the Pacific Cancer Initiative (PCI). Neal Palafox MD, MPH serves as the principal investigator and Nia Aitaoto MPH (based at Papa Ola Lokahi) is the program coordinator. Collaboration between the USAPIN, Department of Family Medicine and Community Health (DFMCH) – University of Hawai'i John A. Burns School of Medicine (JABSOM) and Papa Ola Lokahi have moved the PCI forward. The objective of the Pacific Cancer Initiative is to address the cancer health needs in the USAPIN by:

- (a) creating a regional cancer leadership team of Pacificans
- (b) assessing and articulating the cancer health needs of the USAPINs;
- (c) developing sustainable strategies to address the cancer burden in the USAPIN.

A regional cancer leadership working group was formed in 2003, the Cancer Council of the Pacific Islands (CCPI). CCPI members were nominated by their respective health directors. The members represent curative, preventive, public health, and administrative programs of their respective health services.¹¹

In 2002-03, the family medicine residents and faculty from the JABSOM Department of Family Medicine and Community Health, and Dr. Henry Ichiho conducted a cancer infrastructure needs assessment in the USAPIN. The assessment teams met with key informants in the curative and preventive services to compile cancer-related data from death certificates, hospital records and off-island referral databases. In addition, the teams also asked key informants to assess the gaps in existing programs and services for cancer. The assessments were coordinated, reviewed and analyzed by the CCPI,

presented for approval and verification of accuracy to the respective USAPIN health departments, and published in a special issue of the *Pacific Health Dialog* on cancer in the Pacific.¹²

Leveraging Resources for Cancer Control Efforts in the Pacific: Phase 2

In 2004, the CCPI and the DFMCH partnered to successfully compete for two Centers for Disease Control and Prevention (CDC) National Comprehensive Cancer Control Program (CCCP) planning grants. The USAPIN cancer needs assessments formed the framework and contributed to the success of the CDC grant applications. Leadership for the CDC effort is through the authors (LB, VW, NP) of this article. The DFMCH assists the USAPIN to develop community-based cancer coalitions, to develop culturally-appropriate and sustainable comprehensive cancer control plans, and to provide assistance with writing further grant applications to implement the plans. The ROP has a separate and synergistic CCCP grant. Additionally, another US Federal grant through the Health Services and Research Association (HRSA) awarded to the DFMCH has also been utilized to assist with cancer control efforts in the USAPIN.

Currently, 10 simultaneous CDC comprehensive cancer control plans (CCCP), including a regional plan are being developed in the USAPIN. The plans address risk reduction, prevention, screening, treatment, and addressing quality of life as they relate to the Pacific cancer burden. The process is imbedded in a community based participatory development model. These plans will culminate in applications for CDC Comprehensive Cancer Control Program Implementation grants which will enhance the ability of the jurisdictions to implement priority strategies. The planning process has provided a platform for the communities to understand, to become involved, and to own a strategic plan to reduce cancer in their localities. Many community, national, and international partners have come together to address the Pacific Cancer issues.

Leveraging resources began with advocacy. The advocates were able to attract funding from the Cancer disparities offices at the NIH and NCI. The funding allowed the formation of the Pacific Cancer Initiative and the CCPI, and financed the cancer needs assessments. The assessments in turn provided the framework for the CDC Planning grants. The CDC process, partnerships, and planning provided access to US National organizations such as C-Change and the Lance Armstrong Foundation.

Future Directions

The next year is a critical time for cancer control efforts in the USAPIN. Each jurisdiction continues on an aggressive timeline to complete their comprehensive cancer control plans and grant applications requesting funds for implementation of their cancer plans. Many of the priorities identified include increasing community and health provider awareness; enhancing policies and legislation that support cancer control efforts; improving the infrastructure to provide basic cancer screening services to their entire population; improving infrastructure and health provider capacity to provide appropriate treatment and collect appropriate data; and improving resources and support for patients once they are diagnosed with cancer. Because of the large infrastructure challenges and relatively small numbers, a regional cancer plan is also being developed with goals of creating a sustainable regional entity to oversee cancer control activities in

the USAPIN; developing a set of minimum regional standards for cancer screening and other cancer control activities; developing a regional cancer registry and developing regional resources for training of the health workforce; and, eventually, regional referral centers for selected types of treatment. Partnerships to address cancer control and improve the human resources for health¹³ in the jurisdictions will continue to be developed and fostered with the Hawai'i Tumor Registry, Cancer Research Center of Hawai'i, University of Guam, The Hawai'i and Pacific Area Health Education Centers, University of Hawai'i John A. Burns School of Medicine, National partners, regional partners in education and health, and international partners (WHO, NZAID, AUSAID, JICA, others). By working together, these small island countries can now speak with one voice and leverage resources to address cancer and other health issues in their homes.

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For more information on the Cancer Research Center of Hawai'i, please visit its website at www.crch.org.

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Issues in Medical Malpractice V

S.Y. Tan MD, JD
Professor of Medicine,
and Adjunct Professor of Law,
University of Hawai'i

QUESTION: Having lost faith in several of her doctors including her cardiologist, Mrs. Hee decided to seek non-traditional alternative treatment for her heart condition. She received chelation therapy, herbal enemas, and megavitamin injections from Dr. Snakeoil, but died after six months of treatment. Dr. Snakeoil is a holistic healer, not a medical doctor, but he is licensed by the State. Mrs. Hee had signed a form stating that she understood the unproven nature of the treatment methods and she was willing to assume the risks.

Had she taken the advice of her cardiologist, she would have received effective treatment for her elevated cholesterol and blood pressure. Interventional procedures to improve her coronary circulation may also have proven beneficial.

In a claim against Dr. Snakeoil, which of the following is (are) true?

- A. Mrs. Hee assumed the risk of unconventional treatment, and this shielded Dr. Snakeoil from liability.
- B. Assumption of risk is only a partial defense.
- C. Dr. Snakeoil had an obligation to refer her to a cardiologist.
- D. Mrs. Hee lost her claim because when asked whether conventional treatment would have been life-prolonging, her expert-cardiologist replied: "That would be speculative."
- E. Dr. Snakeoil will be judged by what a reasonable holistic healer would have done under the circumstances.

ANSWER: A, D, E. The facts here are clear that Mrs. Hee actively sought the care of Dr. Snakeoil, a duly licensed practitioner of holistic medicine, and had assumed the risk of treatment. Assumption of risk, unlike contributory or comparative negligence, is a complete bar to recovery.

Whether Dr. Snakeoil is obligated to refer the patient to a cardiologist is subject to the standard of care expected of a reasonable holistic healer. This will be established at trial by an expert in holistic medicine and not by an allopathic medical doctor. It is unlikely there is such a duty to refer, especially since the patient in this case had already visited several conventional doctors including a cardiologist.

Finally, the case was lost after the plaintiff's own expert testified that it was speculative to infer causation, i.e., the failure to refer her to a cardiologist caused her early demise. In order to prevail on the issue of causation, the expert must state that it was more probable than not that her life would have been prolonged by conventional cardiac therapy — not that it was possible or worse yet, speculative.

Assumption of Risk

If a plaintiff is fully aware of the risk to which he or she is exposed, and voluntarily assumes that risk, then there will be no recovery of damages if harm results. This defense has been asserted most prominently in sports activities, such as boxing, where serious injuries are an integral known risk of the activity.

A successful assumption of risk defense in medical malpractice occurred in California where a patient voluntarily and actively sought unorthodox natural herbal treatment for breast cancer after she refused conventional therapy. She received full disclosure of the nature of the experimental treatment protocol and the court therefore rejected her subsequent claim for damages. By giving informed consent to non-conventional experimental therapy, the patient is in effect assuming the risk of harm.¹

The Restatement of Torts defines assumption of risk to mean that the plaintiff fully understands the risk and nonetheless chooses voluntarily to take it.² The Restatement is an authoritative construct of the law by a group of respected legal scholars and is regarded as an important secondary source of legal authority. Case law and statutes are considered primary legal authorities.

The assumption of risk defense is called *volenti non fit injuri* in English law. It is basically a defense of consent. However, mere knowledge of risk does not necessarily imply consent. For example, a plaintiff once accepted a ride from a drunk driver and sustained injuries in a subsequent accident. The court ruled that *volenti* did not apply, unless the drunkenness was so extreme and so glaring that accepting the ride was equivalent to walking on the edge of an unfenced cliff.

In virtually all jurisdictions, consent issues in medical malpractice are now dealt with under the doctrine of informed consent rather than as an affirmative defense of assumption of risk.

This article is meant to be educational and does not constitute medical, ethical, or legal advice. It is excerpted from the author's book, *Medical Malpractice: Understanding the Law, Managing the Risk* published in 2006 by World Scientific Publishing Co. You may contact the author, S.Y. Tan MD, JD, at email: siang@hawaii.edu or call (808) 526-9784 for more information.

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2/4-2/9	GS, VS, TS	Mayo Clinic College of Continuing Medical Education	Wailea Beach Marriott Resort & Spa, Wailea, Maui	Mayo Clinic Interactive Surgery Symposium	Tel: (480) 301-4580 Web: www.mayo.edu/cme
2/10-2/16	PD	University Childrens Medical Group	The Westin Maui	Pediatric Potpourri State of the Art 2006	Tel: (800) 354-3263 Web: www.ucmg.org/cme.html
2/10-2/16	NPM	Keck School of Medicine of USC	West Maui	Perinatal Medicine 2007	Tel: (800) 872-1119
2/12-2/16	IM, FM	Mayo Clinic College of Continuing Medical Education	Sheraton Keauhou Resort, Kona	Selected Topics in Internal Medicine	Tel: (480) 301-4580 Web: www.mayo.edu/cme
2/18	R	Mayo Clinic College of Continuing Medical Education	Hapuna Beach Prince Hotel, Kohala Coast	Advanced Radiology Life Support Course	Tel: (480) 301-4580 Web: www.mayo.edu/cme
2/18-2/23	R	University of California, San Francisco	Fairmont Orchid Hawai'i, Kamuela	Body Imaging in Paradise	Tel: (415) 476-5808 Web: www.cme.ucsf.edu
2/18-2/23		University of California, San Francisco	Grand Hyatt, Kaua'i	Infectious Disease in Clinical Practice	Tel: (415) 476-5808 Web: www.cme.ucsf.edu

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❖ ONE KIND OF MEDICINE MAKES ANOTHER KIND NECESSARY.

The recent ugly reports of fungal disease related to eye solution use have caused a widening worry among contact lens wearers. Fully one-third of the patients with fusarium keratitis related to use of Bausch & Lomb Inc. solutions are scheduled for corneal transplants. The people who make contact lens solutions, namely Bausch & Lomb, Inc., Alcon, Inc., Ciba Vision, and AMO, Inc. and eye care professionals (ophthalmologists and optometrists) have to clean up their acts. Doctors and their staffs and patients need to emphasize simple chores like washing hands, timely discarding of disposable contacts, and regularly sterilizing or replacing contact lens cases. Moistening agents like tap water and saliva are no-nos. Of course, there is another way out, it is called lasik.

❖ IS HE CONAN THE BARBARIAN, KINDERGARTEN COP, OR MISTER UNIVERSE?

No one has ever suggested Arnold Schwarzenegger is not a smart fellow. Now the California Governor has moved ahead of the White House by signing a law which will reduce greenhouse gas emissions (principally carbon dioxide) to 1990 levels by the year 2020. The law calls for a decrease by a factor of 25% and easily passed the California Legislature, although it was opposed by Arnold's own party. While signing the bill he accused President Bush of failing to provide leadership in environmental matters which makes one wonder about Arnold's ultimate goals. Is he thinking perhaps of a Constitutional Amendment to allow a foreign-born American to become President? Ach du lieber!

❖ DIETING IS JUST WISHFUL SHRINKING.

The *American Diabetic Association* (ADA) held its 2006 Food & Nutrition Conference and Exposition in Honolulu September 16-19, attended by almost 10,000 dietitians, researchers, and nutrition professionals. More than half of Hawai'i's adults are overweight or obese. In addition, the prevalence of diabetes in our fair state is above the national average. Native Hawaiians have one of the highest rates of diabetes of any racial group in the country, and also have the highest mortality rate from diabetes. Every eye surgeon has a stable of diabetics he monitors for retinopathy. But in seeking a dietary advisor, there is a problem. Anyone can call him/herself a dietitian whether or not they have any education or qualifications! Hawai'i Legislature passed a law in 2000 requiring licensure of registered dietitians, but to date Hawai'i is yet to have its first such person.

❖ FOOLISH FASHIONS ARE AS CONTAGIOUS AS THE PLAGUE.

In Madrid, Spain, the regional government has placed a ban on overly thin models at the top-rated fashion show in September. Using the body mass index (BMI), a height/weight ratio, 30% of models who were at a previous show were turned away. The medical point is that the show sponsors want to show healthy young women, and do not want to portray a waif-like "heroin chic" look. Their fear is that teenage girls want to mimic the super-thin svelte model's appearance and develop eating disorders. A spokesperson for the New York model agency *Elite* said "This is outrageous. What about discrimination against models or freedom of designers?" Too bad, I say. Anything that can be done to curb this potentially devastating psychosomatic disease is good preventative medicine. Ask any pediatrician who cares for teenage children.

❖ AL GORE IS WALTER MONDALE WITHOUT THE PIZZAZZ.

Al Gore (you remember him) wants us all to know *An Inconvenient Truth* and sends a global warming warning. He helped make a frightening motion picture of the future for the world if we cannot change our behavior about greenhouse gases. He could have also looked more at the hopeful creative side of environmental challenges. With the passage of strong regulations, acid rain in the northeast has decreased by more than 30% since 1990 and Appalachian forests are not dying. Chlorofluorocarbons have all but disappeared and the ozone hole shows signs of reducing in size. Air pollution from automobiles is down by one-third to one-half from 1970, and smog and acid rain have continued to decline with the current Bush administration. New cars today emit less than 2% of air polluting gases compared with 1970 vehicles, and autos have not been priced out of sight. Hydrogen powered vehicles are still in genesis, and they do not pollute at all. So, get

panicky if you must, but go in the way of directed research not around in doom and gloom chicken-little circles.

❖ EQUAL OPPORTUNITY MEANS EVERYONE HAS A RIGHT TO BE INCOMPETENT.

With the overcrowding in emergency departments and the shortage of skilled personnel, deaths such as the 49-year-old woman in Waukegan, Ill., are going to occur. According to the news report, the patient complained of chest pain, shortness of breath, and nausea and was listed as "semi-emergent." After two hours when her name was called, the patient had expired. The coroner's jury called it a "gross deviation from the standard of care." Okay, that appears to be true, but the fascinating part of this episode is that the coroner's jury decided to call the case a homicide! There may be a certain rationale for that kind of thought, but who can be named as the perpetrator – the hospital? the triage nurse? the emergency department supervisor? the ER doc who never saw the patient? or perhaps even a whining non-emergency patient who caused the delay? This is vaguely reminiscent of the California district attorney's failing attempt to prosecute physicians for a nursing home death that occurred about ten years ago. Like the bumper sticker says, *stuff happens!*

❖ THERE ARE TWO WAYS TO ARGUE WITH CMS. NEITHER ONE WORKS.

To make their books look better Centers for Medicare and Medicaid Services (CMS) did not pay you for your services for nine days from Sept. 22 to Sept. 30. This \$1.3 billion delay roll-over from FY 2006 to FY 2007, permitted by Congress, is done without penalty and without any interest being paid, and doctors and hospitals just have to eat it. You might even think that FY meant something other than fiscal year. Physicians who think that they would be better off with a single payer system must understand just what CMS can do. These people are not your friends. Doctors should recognize that the federal bureaucracy retains an ongoing animosity toward physicians.

❖ THE GAS STATION – WHERE YOU FUEL THE CAR AND DRAIN THE DRIVER.

If you think the motorists of Hawai'i are being victimized with the price of gasoline, consider the local add-ons. The average tax on a gallon of gasoline in America is 42 cents. The lowest per gallon tax is Alaska with 26.4 cents; the highest (of course) is Hawai'i at 53 cents. Then we have the additional county gasoline tax on Maui 18 cents, Honolulu 16.5 cents, Kauai 13 cents and the big island 8.8 cents. Lucky you live Hawai'i, right? Well, most of the time.

❖ IN THE TWIN CITIES PEOPLE CAN SLEEP IN SAFETY, MAYBE.

In Columbia Heights, Minn., police had to struggle to get a couple under control after a motor vehicle crash at one A.M. The driver, a 28-year-old woman had crashed into a truck and then a car. Her 33-year-old boy friend fought with officers and had to be hit with a taser gun to be subdued. The driver was cited for driving under the influence (BAC 0.213) and they both were placed in jail, a rather familiar place since they are both police officers in nearby Minneapolis.

ADDENDA

❖ Please don't eat today's spinach because *E. coli* is lurking there according to the USDA. Ironically, according to the Associated Press the evil farm is called *Natural Selection*. Apparently, it is Darwinian spinach. If you survive you will be stronger.

❖ Never try to use ear hair as a comb-over.

❖ If life gives you lemons make lemonade. If life gives you tomatoes, make bloody marys.

❖ If your voting could really change things, it would be illegal.

ALOHA AND KEEP THE FAITH — rts■

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House District 19	Kaimuki, Kahala, Wai'ala, Iki	Barbara Marumoto	House District 48	Kaneohe	Sol Naluai
House District 20	St. Louis Heights, Palolo, Wilhelmina Rise	Calvin Say	House District 49	Maunawili, Enchanted Lake, Kaneohe	Minoo Elison
House District 23	Waikiki, Ala Moana, Kaka'ako	Ann Stevens	House District 50	Kailua, Mokapu	Cynthia Thielen
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