

“Oral Health: What is the Heart of the Issue?”

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In a recent medical journal, a Professor of Medicine- (by definition, a person I hold in high esteem), commented that “even a first year intern in Radiology could now”, by virtue of modern scientific technology, “diagnose better than Sir William Osler”, the Father of Modern Medicine. I respectfully but adamantly disagree, just as I disagree with the notion that Mr. Porsche must be a much better inventor than Henry Ford, since a Porsche can run circles around a Model T. In fact, I find it both personally and, as a physician, professionally offensive to seemingly overlook that we could not have learned how to think relationally and to apply medical knowledge appropriately, (that is, within the context of a unified system of physiologic concepts), had we not followed with humble trepidation in the footsteps of giants like Sir Osler. Men and women of genius and insight, those that held a light into the darkness and paved the way for us students to follow, gave us a much greater gift than just technical skill. They provided a philosophical framework as a foundation, and a springboard from which ideas and discoveries could blossom. (If Sir Isaac Newton “stood on the shoulders of giants”, then we Lippiputians definitely need a stepstool!).

In my opinion, it is precisely a deficiency in philosophical perspective that gives rise to what many feel is in some ways a terrible state of affairs in America today overall, in terms of our population being generally unwell. Many health professionals and many citizens would agree that the American medical system typically excels in the treatment of very ill patients, but has not been very effective on the whole with regard to helping people become and stay healthy. As a population, many Americans lack the vitality of our ancestors, and are overwhelmed in varying degrees by chronic disease. I submit that this is largely a result of our failing to respect the wise words of our teachers, notably Sir William Osler, who advised us to be mindful that should we focus only on isolated details without assessing a patient broadly, then we could easily “lose all sense of proportion in a maze of minutiae”.

For example, I recently had the all too unusual privilege of treating a gentleman in the emergency room who had reached a hundred years of age; he had been alive during Osler's lifetime. (Centurians represent about one-half percent of the current American population, down ten-fold from about five percent in the 1880s). This gracious gentleman presented in renal failure, which was associated with his being on a relatively very high dose of a diuretic medication, (furosemide, 120 mg daily). It is common medical practice to use diuretics to treat congestive heart failure, that is, to increase urinary output in order to relieve the accumulation of fluid in the lungs (causing respiratory congestion) and in the lower extremities, (causing swelling). The “water pill” interferes with the kidney's reabsorption of salt into the blood, so that the increased excretion of salt into the urine osmotically “pulls water” out of the body with it. As a result of dehydrating, the fluid is absorbed from the lungs and tissues to prioritize perfusion of the kidneys, heart, and brain, and this relieves the acute congestion. However, while this treatment approach can be life-saving in the patient who cannot breathe effectively (i.e. in the acute setting, the end justifies the means), the fluid and salt depletion contribute to a host of

problems, on occasion resulting in kidney failure when the dehydration leads to decreased perfusion of the kidney. What is intriguing in this very common scenario is that the patient with congestive heart failure typically does not have an overload of body fluid, but rather has improper distribution of fluid. Often the patient is actually fluid-deprived in terms of overall body fluid status, but still gets into trouble with congestion because of the inability to move the fluid effectively. In the case of this one-hundred-year old fellow, we could easily calculate that if his heart contracts every second or so, he's been able to beautifully coordinate over 3 billion lub-dubs in a century. Ultimately, his heart will decrease in its capacity to beat with as much vitality and effectiveness, as he once enjoyed as a younger man, (especially if his nutritional status is less than optimal). The inability to move blood with optimal efficiency results in fluid build-up: the right side of the heart drives blood through the lungs, and the left side of the heart drives fluid through the entire body, so the lungs and legs are the “low points”. Thus congestive heart failure generally results from a lack of cardiac vitality and imbalance in the physiologic activity of fluid and salt- primarily a nutritional issue. Unfortunately, when patients are on chronic diuretic therapy, (which is very common), the fluid and mineral depletion not only can result in impaired renal perfusion, increased insulin resistance, and other problems, but actually magnifies the underlying imbalance in congestive heart failure by depriving the heart muscle of the salts (electrolytes) it requires to pump effectively. And as this patient continues to lose salt through urination, the blood becomes less salty, and thus less able to osmotically hold fluid, resulting in chronic leg swelling, (since the blood is too dilute to hold the fluid within the vasculature). The impression one gets is that the diuretic, while very effective in the treatment of acute congestion, functions a bit like a “loan-shark”: the treatment may rescue a person from trouble, but the same treatment also magnifies the problem over time. (While this brief discussion threatens to digress from the issues at hand, it is worthy of note that the refinement of salt ultimately sets this cascade of trouble into motion. The extraction of the eighty or so minerals naturally occurring in salt transforms it into a substance which does not have the biochemical properties which enable it to effectively go into solution in blood, nor to mediate cell functions properly. One can speculate that using refined salt to introduce salt and fluid imbalance, and then magnifying the physiologic imbalances that are set into motion with diuretics might well invite comment from Dr. Osler?)

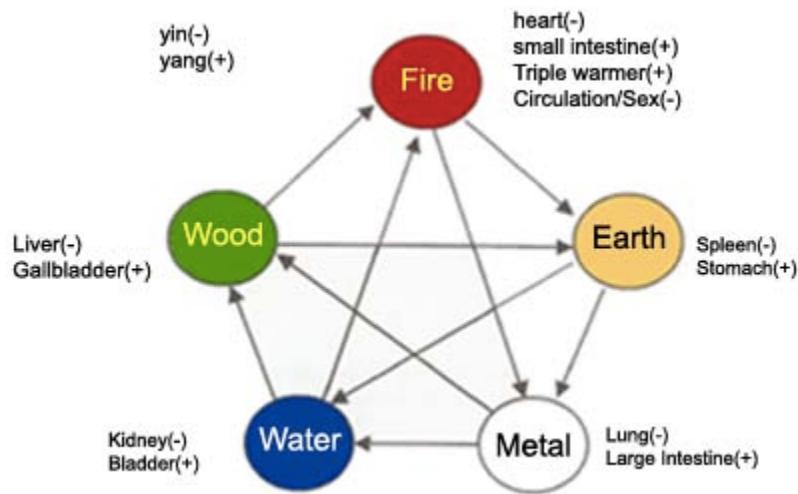
This clinical pattern, in my opinion, represents an absence of “philosophy” in medical analysis, (humbly submitted). As “doctor” derives from the Latin root, *docere*, “to teach”, it can be fairly said that our patients depend upon us doctors to provide the information and perspective, rooted in a comprehensive understanding of body function, to empower our patients to make good decisions in health issues. We have the privilege of helping patients and families “put the pieces together” by helping them understand how symptoms arise within the context of a biologic system, and to contribute an understanding of the relationship between the individual “parts” and the whole pattern- i.e. to offer a “philosophy”. Is it reasonable to suggest that we docs potentially abandon one of our primary responsibilities if we limit our practice to the adjustment of symptoms without applying the comprehensive perspective gained through years of study in medical theory? (I certainly don't wish to criticize the highly gifted physicians who serve so capably and brilliantly, but rather direct this inquiry with regard to the all-too common practice in the clinical realm of using relatively potent medications without due consideration of the

overall nutritional status in the un-well patient). By way of contrast, for example, it has been well-established that the nutrient co-enzyme Q10 can double the cardiac output in a patient with severe (Stage 4) congestive heart failure by “re-charging” ATP and thus vitalizing the circulation, while also offering anti-oxidative protection to the vasculature, regulating blood pressure, providing immune support and decreasing the risk of cancer, (documented in the decreased incidence of prostate cancer), as well as providing other benefits. Is it philosophically sound, for example, to appreciate the benefits of medical therapy, as powerful and useful as they are when applied appropriately, yet overlook the benefits of complementary concepts and methods? It might be appropriate to suggest that philosophy, in basic terms, stems from good old-fashioned common sense over time, the refinement of ideas which stem from observation and reasoning. When a gentleman lives to be a hundred, it's clear that he is “made of good stuff”, and it seems practical to suggest that in general terms the risks of aggressive interventional therapy could easily outweigh the benefits. In practical terms, it's likely that most health issues in a 100-year old gentleman arise primarily from a depletion of substance and nutrition over time, such that it would seem more appropriate generally to build a foundation of nutritional support, with use of medications considered in a supplemental manner.

I use the term “philosophy” in a non-classical manner, to describe the responsible application of a whole spectrum of appropriate ideas and systems of thought in problem-solving, (hopefully a convenient and practical usage). In academic circles, of course, philosophy, the *love of knowledge*, has a more formal meaning. Scholars of “high philosophy” ponder deep issues relating to the nature of mind, the ability of a cognitive creature to evaluate self, and other considerations (that could in some cases chase a young under-grad over to the Science building!) Appealing to the flexibility of the reader, I use the term ”philosophy” in a way that is more akin to the approach of Traditional Chinese Medical (TCM) philosophy, which is historically the origin of medical theory. (Empiric treatment using herbal medicines, manipulative therapy, and other techniques preceded the development of the TCM system, but a study of medical history indicates that the first comprehensive, unified system of ideas which provided an analytical framework for the investigation of disease and the formulation of physiologic principles was a gift from the ancient Chinese. (The first medical canon was the *Yellow Emperor's Classic of Internal Medicine*, primarily an acupuncture text, dated arguably between 1500 B.C. and 3500 B.C.) Many of the foundational concepts upon which medical and physiologic theory are based emanate directly from traditional Chinese Medical philosophy. (For example, Harvey brilliantly demonstrated in the early 17<sup>th</sup> century that blood circulated, though the concept of circulation of blood, and energetic substance, i.e. Qi in the Chinese medical system, is discussed three millenia before the birth of Christ in the literature of Chinese medical philosophy. It is interesting to briefly expand the physiological relationship between heart function and kidney function, as touched upon above, in light of TCM philosophical theory.

The depth and sophistication of TCM demands a very superficial summary, as we touch upon a foundational TCM principle, the Theory of Five Elements. In TCM energetic philosophy, the life essence (including the genetic inheritance) of the parents is stored in the Kidney, (inclusive of the genito-urinary system). As such, the Kidney in TCM functions as a reservoir of vitality,

supporting growth and development, providing a wellspring of energy which powers the will, physiologic function, and ultimately, reproduction. Among numerous energetic functions, the Kidney (in TCM) engenders and infuses the bones and teeth (providing minerals and other constitutional components), creates blood in the marrow, and supplies metabolic energy, (which is distributed by the “son” of the Kidney, the Liver). In the Five Element system of relationships, one physiologic system activates another in accordance with the the “Creative” or **generating** cycle::



The Water Element (ruled by the Kidney) creates Wood (the Liver), which in turn creates Fire (the Heart), which creates Earth (the Spleen), which creates Metal (the Lung)... which creates Water, etc.

Balance is achieved by the inhibitory action illustrated in the “Neutralizing” or **overcoming** cycle: Fire (the Heart) is activated by Wood (the Liver), but is also inhibited by Water (the Kidney), etc.

As noted, this extraordinarily deep (and complex) philosophical theory reveals that while the Kidney (Water element) generates energy to the Liver, (Water nourishes and promotes growth in Wood), the Liver likewise generates energy in the Heart (Fire) system, providing a flow of energy to invigorate the heart and move the blood, (Wood creates Fire). As indicated, homeostatic balance is achieved when the Kidney system also regulates or limits Heart function (Water “**overcomes**” Fire; *Yin* balances and inhibits *Yang*). We see adrenal function in modern medicine regulate blood pressure and cardiac activity, and as described in the above clinical scenario, (in which a deficiency in salt and water, which are controlled by the kidney, impairs cardiac efficiency), the ancients brilliantly described these and many other physiologic patterns, these insights emanating from the philosophical principles described in TCM.

In relation to oral health, TCM philosophy teaches that the teeth and bones, as noted previously, are generated and nourished by the circulation of elements ruled by the Kidney. (*Yin/Yang* Theory tantalizingly reveals that the softest of substance- water, engenders the hardest of tissues- teeth and bones). Not only does the strength and vitality of teeth and bone tissue flow forth from the abundant physiologic energy stored in the Kidney (TCM), but the reservoir of minerals, amino acids, and vitamins provided by the kidneys (modern physiology) enriches the body fluids which deliver these components to form and nourish the teeth and bones. As such, the strength of the teeth reflects, for TCM, the level of vitality of the Kidney system.

Clearly, oral wellbeing also depends upon a number of other aspects: the vitality of the gums and connective tissues, the presence of beneficial flora, healthy circulation and balanced immune function, etc. The health of the mouth in general flows forth from a healthy digestive system, (in TCM, the Spleen, Earth element). The **generative cycle of Five Element** indicates that an abundant wellspring of energy (stored in the Kidney) flows forth in a balanced manner as distributed by the Liver system, (as Water generates Wood). Further, the flow of energy invigorates and activates the Heart (as Wood generates Fire), so that energy flow from the Liver drives blood flow from the Heart, which in turn circulates the nutrition absorbed by a healthy Spleen, (Fire generates Earth). As the Heart is the “mother” of the Spleen, providing power for the circulation of nutrients, the health and vitality of the mouth (as a manifestation of Spleen energy) emanates directly from a healthy Heart. Again, as we all too briefly consider issues in oral health, we see the important relationship between the Kidney and Heart systems as described in ancient Chinese medicine- (though in all fairness, that has been our focus!)

While Dr. Ralph Moss tells us that cancer is in fact currently the “Number One Killer”, we continue to hear in medical news that cardiac disease remains “Number One”, since that time in American history that heart disease sprung from obscurity (in the 1930s, before access to growth stimulants led to about 99 per cent of our grazing animals being taken off grass) to the dreadful state of affairs, rampant cardiovascular disease, we have seen for several decades. Very briefly stated, we are inundated with chronic disease , the hallmark of which is “inflammation”. Heart disease, stroke, diabetes, dementia, arthritis, renal dysfunction, and a host of other diseases related to vascular inflammation overwhelm our medical system. Other conditions which also have an inflammatory component, such as, for example, cancer, auto-immune diseases autism, psoriasis, infectious disease, and potentially psychiatric disease to some degree- all involve an element of immunologic imbalance, which by definition involves a disharmony in the inflammatory cascade. Typically, the pattern is an excessive pro-inflammatory skewing of the immune response. Should we look to our original teachers for philosophical insight in this regard, it seems very likely that this pattern of deregulated, uninhibited inflammatory action would be viewed, from the TCM perspective, as... well, you guessed it, Fire. (Too much *Yang* activity, not balanced and restrained by *Yin* essence). The limitations of a very brief commentary prohibit further diagnostic consideration, however interesting, but it can be mentioned in passing that what the modernist calls tachycardia and high blood pressure, the ancients called Heart Fire; what the modernist calls psychosis, the ancients called Heart Fire disrupting the spirit, etc. etc. We are looking at a general pattern characterized by Heart Fire (as an initial TCM energetic

diagnostic impression) when we see a preponderance of atherosclerosis, diabetes, dementia, hypertension, and related illnesses associated with inflammatory vascular disease. It has been well established that there is a clear link as well between dental decay and vascular disease, which also (of course) goes beyond the scope of these brief comments. However, it seems worthy of mention in passing that the extraordinary level of dental and oral disease seen in America, (despite the excellent access to dental services we enjoy in America relative to most countries) also reflects this underlying pro-inflammatory imbalance which is at the heart of much of the chronic disease so prevalent in modern times.

I treasure the extraordinary good fortune and privilege to extensively interact with Will and Susan Revak, (founders of OraWellness). It is in keeping with the excellence of their contributions that they recommend regular enjoyment of bone broths (grass-fed only, of course!) as yet another foundational modality for optimizing oral and dental health. I certainly must agree, and we can see that the TCM principles we touched upon are in accordance. Bone broth would certainly build Kidney essence. Clearly, another of our great teachers, Dr. Weston Price advocated bone marrow, as a source of collagen and GAGs, minerals, fat-soluble vitamins, and other life-giving components. It seems reasonable, in light of the TCM principles discussed that taking bone essence through the use of grass-fed bone broth, and perhaps other forms, would not only benefit in terms of providing nutrition for the strengthening and repair of bones and teeth, but would contribute to physiologic balancing, as a contributing factor in balancing immune function. As oral health is clearly a subset of general physical well-being on the whole, optimizing oral health clearly can contribute to balancing the physiology of inflammation, and could contribute importantly to moving away from a culture of sickness, dominated by the ravaging effects of dis-regulated inflammation.

(Note from Will and Susan Revak: You will hear a lot more from Dr Jon Cotter in the coming months and years! We are encouraging him to come out into the world and share of his extensive knowledge with those of us who really want to hear what he is uniquely trained to share with us.)