

CPC #6: Pseudotumor Cerebri

Readers Summary:

1. Can you have symptoms of a brain tumor without actually having one?
2. Could fake light cause this?
3. How does vitamin a recycling in the brain control photoperiodicity?
4. What happens when we lose control of our photo period?
5. How does modern life play a role in this?

It has been close to a year that we last did a CPC blog post. (CPC #5 The Leaky Gut/Adrenal Fatigue Case) CPC stands for a clinico-pathologic conference that we often see in medical schools that our used for teaching students and doctors.

Today we are going to talk about a disease that has perplexed medicine for hundreds of years. **Pseudotumor cerebri** is also known as idiopathic intracranial hypertension (**IIH**) today. It goes by many names in the literature. I have decided to discuss this disease because it highlights many of the cornerstone principles of how quantum electrodynamic theory affect water chemistry. Dr. Gilbert Ling's work on water helped me unlock these ideas in the last ten years. This change in water chemistry can lead to biologic effects. The biologic effects of water can be seen in modern humans when we look for them and correctly observe what is really going on.

So today we see how the macrocosm affects the microcosm of a modern disease.

Pseudotumor Cerebri History

The first report of IIH was by the German physician Heinrich Quincke, who described it in 1893 under the name **serous meningitis**. The term "pseudotumor cerebri" was introduced in

1904 by his compatriot Max Nonne. Numerous other cases appeared in the literature subsequently; in many cases, the raised intracranial pressure may actually have resulted from underlying conditions. For instance, the '**otitic hydrocephalus**' reported by London neurologist Sir Charles Symonds may have resulted from venous sinus thrombosis caused by middle ear infection. The strict diagnostic criteria for IIH were developed in 1937 by neurosurgeon Walter Dandy; Dandy also introduced subtemporal decompressive surgery in the treatment of the condition. Dandy was able to tell us what to look for to diagnose the condition and treat it, but he was clueless on why it actually occurs. Even to modern neurosurgeons pseudotumor's etiology remains an enigma. In 1974, CSF studies were done that showed even with abject signs of increased intracranial in pseudotumor patients, their CSF pressures were really low. This confused many when it was published.

Possible Quantum Diagnosis of IIH

Today I am going to give you a few of my own ideas of why this disease may not be idiopathic at all. It's basis maybe based in chronobiology due to the inability to tell quantum time (as discussed in EMF 6).

At its core, this condition, (and its associated condition migraines) is a disease of chronic blue light toxicity that causes an internal disruption of the **tight control of Vitamin A regulation** in the brain and in the molecular organ clocks to cause a dramatic change in the proportions of high density water (HDW) to low density water (LDW) in the CSF of the brain. Most people associate the light cycle with Vitamin D in animals and mammals. I do not. Vitamin A controls the photoperiod clock in the mammalian brain.

When we loose the tight control of Vitamin A in the brain for any reason, the patient develops substantial increases in

intracranial pressure without any other mass present in the brain on MRI or CT imaging. We see the effect because of the pressure placed upon the cranial nerves which have to traverse the CSF spaces within the head to exit the skull to go onto their destinations. The major symptoms associated with this disease is a loss of vision as the chronicity of the process increases. Physicians can find clues of this disease when they look into your eyes with an ophthalmoscope to look for papilledema.

The four diagnostic criteria we use today to diagnose this condition are:

1. CSF pressure > 20 cm H₂O, but pressures up to 40 are not uncommon. I use 25 cm because many normals are at 20 cm.
2. CSF composition shows normal glucose and cell count. Protein is normal or in 2/3rd it is LOW (<20{a7b724a0454d92c70890dedf5ec22a026af4df067c7b55aa6009b4d34d5da3c6}). (**epigenetic clue**)
3. Symptoms are those of elevated ICP alone: No cause is found like a mass or clotted sinus, or infection. No consciousness change.
4. Normal imaging on CT or MRI. They might have slit ventricles or empty sella syndrome. (abducens palsy is allowed)

The terms "benign" and "pseudotumor" derive from the fact that increased intracranial pressure may be associated with brain tumors. These patients have no tumor however on imaging studies. Those patients in whom no tumor was found were therefore diagnosed with "pseudotumor cerebri", describing it like a disease mimicking a brain tumor. The disease was renamed "benign intracranial hypertension" in 1955 to distinguish it from intracranial hypertension due to life-threatening diseases such as cancer; however, this was also felt to be misleading because any disease that can blind

someone should not be thought of as benign, and the name was therefore revised in 1989 to "**idiopathic**". Physicians use the term idiopathic to ascribe no identifiable cause to the intracranial hypertension. This makes IIH a diagnosis of exclusion. A severe visual defect only develops in 4-12% of patients, and ironically it is not tied to duration of symptoms (**another clue**), degree of papilledema, or number of recurrences. (**two more clues**) Visual perimetry examination is the best means to detect and follow the visual loss. Visual loss is when a neurosurgeon or neuro-ophthomologist will consider surgery for this condition.

Modern Trends :

From national hospital admission databases it appears that the need for neurosurgical intervention for IIH has increased markedly over the period between 1988 and 2002. This increase in incidence and prevalence of this disease completely corresponds to obesity incidence and prevalence trends and NHANES charts over the same time period. The median age of diagnosis is 28 years old. It is especially more common in the ages 20 to 45, number continues to fall over the last 50 years. This is an epigenetic signal to us paying attention.

Women are far more effected than men. This is another **deep epigenetic clue** for those paying attention. Women are designed by evolution to be more sensitive to environmental changes to pass on to the next generation as we covered in a recent webinar, Breast Cancer. When I was in residency, the female to male incidence was 4-5 to 1. Today it has risen to 8-9 to one in 20 years. Here is another **epigenetic clue for you**. There is an infantile form of this disease as well.

This is another clue for transgenerational epigenetics at play. Despite several reports of IIH in families, there is no known genetic cause for IIH. People from all ethnicities may develop IIH. In children, there is no difference in incidence between males and females. (**Another clue**)

The Leptin Link:

Overweight and obesity strongly predispose a person to IIH: women who are more than ten percent over their ideal body weight are **thirteen times** more likely to develop IIH, and this figure goes up to **nineteen times** in women who are more than **20 percent** over their ideal body weight. In men, this relationship also exists, but the increase is only **five-fold** in those over 20 percent above their ideal body weight. Here is another huge **epigenetic clue** to what is really behind this disease. Most of these people have elevated estrone levels when it is looked for. There is a link to hormones. (**another big clue**)

Further Clues That There is a Quantum Cause Lurking

There is a pressure-volume relationship between intracranial pressure (ICP), volume of CSF, blood, and brain tissue, and cerebral perfusion pressure (CPP) that every first year neurosurgery resident learns about and becomes a master at controlling and treating as their training increases. It is known as the Monro-Kellie doctrine: the ICP (literally: pressure inside the skull) is determined by the amount of brain tissue, cerebrospinal fluid (CSF) and blood inside the bony cranial vault. Remember, the skull in adults has a fixed volume. In children with open sutures the volume can expand within limits. In adults the amount of brain tissue is relatively constant. The two main variables for volume in adults are the amount of CSF and the amount of blood in the brain. Both are tightly controlled normally by our physiology.

Three other “conventional theories” therefore exist as to why the pressure might be raised in IIH:

- A. an excess of CSF production
- B. increased volume of blood or brain tissue
- C. obstruction of the veins that drain blood from the brain.

None of these have held up to scientific scrutiny so far. I have another idea that might tell us about the cause of this 'idiopathic' condition. I think the cause is directly tied to both the CSF and the blood volume.....due to a change in **density of its water content** in the brain. We talked about density of water and current in the last two blogs extensively. Now I am showing a disease state where density matters. This disease, pseudotumor, is always linked to conditions of energy inefficiency as you will see. It is also tied to an altered circadian signal because of its tie to altered Vitamin A signaling in the brain. . Obesity is the most common one, as I mentioned above.

Here is a list of others diseases linked to pseudotumor:

1. exogenous corticosteroid use (it dehydrates you)
2. tetracycline antibiotics, tamoxifen, cimetidine, lithium, bactrim, naldixic acid (all cause lower progesterone levels, which also dehydrates you)
3. Accutane use (Causes massive alterations in Vitamin A outside of the photoperiod which affect Vitamin A recycling in the brain)
4. SLE (lupus=autoimmune disease)
5. Cushing's Disease (dehydrates you and causes massive lipodystrophy)
6. Addison's disease (true Adrenal failure with a side of more dehydration)
7. Hypoparathyroidism/hypothyroidism/anemia (massive water

and protein changes in the serum)

8. Chronic renal failure (high BUN creat ratio= dehydration)

9. Radiation treatment to head and neck (massive loss of photons, electrons, and water due to the effects of XRT on cells and intracellular water)

10. Hyper or Hypo vitaminosis of Vitamin A (loss of circadian control of the hypothalamus and neurogenesis)

Every one of the diseases listed above are directly tied to water deficits in the human body at some point. When water loses its coherence it loses more low density water and gains more high density component. We spoke about this in the blog post, Quantum Biology 5: Coherent Water. This means that the pressure volume curves for CSF and blood can change immediately when water loses its ability to super conduct protons or electrons. This explains why IIH shows no biochemical changes or changes in imaging. It also explains why low protein is often found. Water acts as a super conductor for electrons and protons and collagen and protein are the other major one semiconductors in the body.

If one is energy inefficient you are unlikely to be optimal in every semiconductor in biology. (Collagen, water, DHA, etc.) Any time a person is energy inefficient, one is also considered leptin resistant. We covered this directly in EMF 2: Einstein, Meet Leptin. The ten conditions mentioned above all have two things in common. They are all associated with dehydration and leptin resistance at some level physiologically. The common tie is a lack of coherent water.

CSF is an ultra-filtrate of the blood's plasma, which is made up mostly of water. This is why I think IIH is tied to both to density changes of CSF and blood via their common chemistry to water. When you consider what happens to the ratio or LDW to HDW as the total energy in a system drops things become quite clear this disease is not caused by an "idiopathic

cause". This is caused by the physical chemistry that dictates the density in water. As we lose the ability to preload our semiconductors, we lose the amount of LDW that can become coherent and increase the amount of HDW in terms of a percentage.

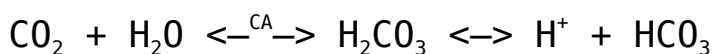
Moreover, this further increases the metabolic demands in the brain to live off of alternative energy sources, like ATP, to power its energy needs. This is another reason why sleep apnea is commonly seen in people with IIH too.

Conservative Treatment Also Points to Water Cause

Neurosurgeons and neurologists use Acetazolamide to treat pseudotumor. Let us look at how it is designed to work.

Acetazolamide (DIAMOX) is often used to lower fluids in the body that are ultra-filtrates from blood. Acetazolamide is a carbonic anhydrase inhibitor.

Carbonic anhydrase (CA) catalyzes the first part of the following reversible reaction in which carbon dioxide (CO₂) and water (H₂O) are converted to carbonic acid (H₂CO₃) and vice-versa (the second half happens spontaneously, favouring production of H⁺ + HCO₃⁻):



Acetazolamide has been used for the treatment of sufferers of IIH and glaucoma. When used to treat glaucoma, acetazolamide inhibits production of HCO₃⁻. In health, it is the production of HCO₃⁻ which draws Na⁺ into the eye; water follows by osmosis to form the aqueous humour. In glaucoma treatment, the goal is often to reduce the intraocular pressure and

acetazolamide does this by **reducing production** of aqueous humour. In IIH, the goal is to lower CSF production to limit intracranial pressures and reduce the patients symptoms.

What Other Quantum Effects Might Be At Play?

In people with diseases that include bad headaches, like pseudotumor or migraines, I always first think of artificial light toxicity that cause elevations or declines of the tight control of Vitamin A in the brain. What does Vitamin A do in circadian biology? **Vitamin A entrains the central and peripheral clock to work correctly.**

When Vitamin A's tight regulation in the brain goes awry, you lose control of neurogenesis and control of the hypothalamus where hormones are regulated by leptin. It is a very complex quantum dance that goes awry because of the effect of artificial light on retinoic acid and its receptor (RXR). The alteration of the tight allosteric control of Vitamin A in the brain. Today, we know that vitamin A control is tightly linked to our photoperiod.

Our photoperiod is tied to our exposure of artificial light. The more artificial light we get the less control we have over Vitamin A in the brain. Why is this important?

When we lose the control of Vitamin A we lose the ability to tell proper quantum time. Telling proper quantum time allows us to have two major controls for neurogenesis and for our circadian rhythm.

Researchers at the Salk Institute for Biological Studies have discovered that vitamin A promotes learning, and they have provided the first evidence that the vitamin affects brain cell activity in a region linked to learning and memory. Vitamin A is critical in fetal life in the hippocampus to

make new neurons in embryology but also during our adult life spans. It also is a giant clue why alterations in our photoperiod are closely linked to poor memory formation in neurodegenerative diseases. All neurodegenerative diseases are tied to alterations in circadian rhythms and fake light has huge links to these diseases and the diseases that predispose to them like T2D. (**cycloset alert**)

The neurons in the hippocampus of the brain express particular receptors (RXR) that are present in the nucleus and they control the genes that are essential to regulate the cell function. Currently there is two areas that neural science is particularly interested in regarding the brain where we think Vitamin A has particularly powerful actions. One is the hippocampus, and that's an area where it's involved in learning and memory, and has links with depression. The other region that researchers particularly interested in lately is the hypothalamus, where leptin controls all the hormones of the body. This is a **huge clue** for us to follow.

Vitamin A has a variety of beneficial properties, in particular, its role in vision has been appreciated for decades. It is critical in using the photoelectric effect in rods and cones for vision. Vitamin A exerts these effects by attaching to specific molecules called receptors (RXR) that reside within cells, detect the vitamin's presence, and help it to control complex genetic networks. In the eye they are tied to rhodopsin. In the hypothalamus and organ clocks, these networks tie directly to PER1 and PER2 genes that control our molecular clocks. Read *Why do we sleep?* for more information. **Here is an excerpt that tells you what the PER1 and PER 2 genes do:**

For evolution to work, a cell first must adapt to its environment. So the first thing a cell would see in an earth day is a period of day and night. It also has to eat to make energy and it also has to control its own cellular division. So in essence the **circadian cycle** has to "yoke" to the metabolic cycle and its growth cycle. Evolution apparently agreed with that assessment because we now know

it to be true. When it is night time, the cell becomes more reduced chemically and electrically. (A lower redox state like we saw in the mitochondrial series). During a low redox time, cells are usually recycling their components using **autophagy**. During the day while energy is being made to explore the environment, the cell is more oxidized because of increased leakiness of the mitochondria. Another interesting coupling occurs between the circadian cycle with the cell cycle. They are linked via the PER 1 and PER 2 genes. PER 2 directly effects the cell cycle in **mitosis**. Mitosis is the phase in the cell that occurs just before cell division to generate an offspring. The mammalian period 2 gene plays a key role in tumor growth in mice; mice with a mPER2 knockout show a significant increase in tumor development and a significant decrease in apoptosis (levee 19). This is thought to be caused by mPER2 circadian deregulation of common tumor suppression and cell cycle regulation genes, such as Cyclin D1, Cyclin A, Mdm-2, and Gadd45±, as well as the transcription factor c-myc, which is directly controlled by circadian regulators through E box-mediated reactions. This means that sleep is tied directly into to cell cycle functioning and directly into cell mediated immunity at some level. It appears that sleep directly effects the chronic diseases of aging and likely plays a role in cancer development.

Many people wrongly believe light cycles are tied to Vitamin D and its receptor in the skin and brain. Few know about vitamin A and how it controls the human photoperiod in our brain. It is the major player in determining photoperiodicity.

Photoperiodicity is accounted for by changes in Vitamin A in the brain. It accurately mirrors the changes in the brain and the body that occur between the seasons.

When comparing the effects of the short days that occur in winter with long days that occur in the summer Vitamin A

(retinoic acid) swings in massive amounts. Researchers are finally beginning to understand how the brain converts the electromagnetic signal of light, first to an electric message, and then to a chemical one in the neuron synapse called a neurotransmitter. We know that there are big changes between seasonal conditions on the planet even at the equator, and that seems to be how the wild animal controls weight gain and energy balance naturally in the environment. It also explains why obese women with IIH have massive alterations of Vitamin A too. Humans tend to gain weight in winter. If you open any newspaper in January in the northern hemisphere, you will see tons of ads for New Years resolutions and gym memberships at this time to humans lose weight. This is unusual when you consider that wild animals do the opposite in January. Wild animals tend to get fatter going into the summer, and leaner into the winter when the light cycle is lowest and food is more sparse.

The reason becomes quite obvious when you consider that wild animals live by the dictums of their environment, **but modern humans create their own environment via culture and socialization**. This creation of their own environments destroys their photoperiodicity, and dramatically alters Vitamin A signaling in the brain. Vitamin A is crucial in properly regulating the clocks tied to the hypothalamus that controls appetite, feeding, and energy balance. This is how quantum time is altered.

Today researchers have found that between winter and summer, retinoic acid changes dramatically itself **in all mammals**.

There is a lot more to this 'quantum dance' of Vitamin A too.

It appears there is much more powerful retinoic acid signalling during the periods of summer compared to the short days of winter. This implies that Vitamin A levels in the brain **must be correctly tied to the season** or severe alterations in 'adiposity' and depression will result.

Vitamin D gets all the press, but Vitamin A control in your

brain is way more important seasonally. It seems counterintuitive until you understand how QED works in the brain.

Overdoing or Underdoing Vitamin A Levels

Excessive artificial light (**blue light**) causes allosteric and homeostatic issues in the Vitamin A cycle in the brain. This directly affects gene expression by alteration in the molecular organ clocks body wide, but the brain really takes a hit because the hypothalamus loses control of its ability to balance hormones because it can no longer tell 'quantum time' using the photoperiod. **This is why IIH is closely associated with low or high levels of Vitamin A.**

It is not tied to a dietary problem!!!.....it is a sign that the person is bathing their brain in a lot of blue light and this totally has destroyed the tight control of Vitamin A in the brain. We also know that obesity is tied to excessive blue light exposure, so this is why pseudotumor and obesity appear linked. The real linkage is in an altered Vitamin A signaling in the hypothalamic molecular clock. When this happens, the result is a loss in low density water (LDW) in the CSF and blood and the intracranial pressure in our head builds up to cause serious complaints. This loss of LDW result in a {a7b724a0454d92c70890dedf5ec22a026af4df067c7b55aa6009b4d34d5da3c6} increase in high density water in our CSF and blood causing a rise in our intracranial pressure. Migraines are caused by a very similar mechanism, but the percentage change is not as large or as chronic as the one that occurs in pseudotumor cerebri.

These neurologic complaints often go on without anyone finding anything during a work up because few people understand how photoperiodicity affects the brain's tight control network of Vitamin A and the hormone cascade we covered in Brain Gut 11:

Is Technology an Achilles Heel? You may remember from the Hormones 101: Clinical Thoughts Revealed blog post that I told you cholesterol is converted to pregnenolone when there is a proper amount of free T3 present from the thyroid and the proper amount of Vitamin A. You might want to go back and have a look at that blog.

When you add in the effect of a change in water densities from the CSF and blood, to the etiology of IIH via an altered Vitamin A recycling in the hypothalamus, this disease goes from idiopathic one to very understandable condition.

I believe pseudotumor cerebri is tied to a toxic exposure of blue light that alters Vitamin A levels up or down in our brain, while it acts to dehydrate us via a developing pregnenolone steal syndrome. When we get dehydrated this is a signal to our osmole receptor in the circumventricular organs to increase the ratio of HDW to LDW in CSF and our plasma. I also think people with atypical migraines also might have a touch of this condition as well on a shorter duration basis. I believe the type of artificial light too plays a role too. In several of my patients who have had this condition, I have found weight loss and limitation of fake light has been massively helpful in improving headaches, constipation, and depression. Improving the ratio of LDW to HDW, using 'quantum hydration principles' intracellularly also seems to help their symptoms. Here avoiding dielectric blockers becomes critical.

This condition can have periods of high or low Vitamin A levels, and symptoms can be affected by a diet that is incongruent with the perceived light cycle. If you have an altered circadian rhythm to light to begin with, then diet can make a huge difference in the symptoms of this disease.

This is where "**sweet potatoes**" can cause you a massive problem. I have seen quite a few young crossfitters develop this syndrome. They tend to have more depression than patients with a frank diagnosis of IIH syndrome because they

are not leptin resistant at the outset, like those diagnosed with IIH. Why do they get this syndrome? Because they have a very high comorbid exposure to blue artificial light than any group I have seen because of how they use and consume modern technology.

I have seen patients eating foods with high levels of Vitamin A, like sweet potatoes, carrots, pumpkin pie, and spinach that can immediately trigger headache, malaise, constipation, and migraines. Moreover, even a mild to moderate depression can develop quickly in them without a large dietary exposure.

The amount of blue light exposure is really the 'epigenetic signal' that the person might have a toxic dose of blue light to begin with. Many times they sense it, but do not trust their intuition.

Obesity rates and tech spending are linked for this reason. Every ten percent increase in tech spending leads to a 1{a7b724a0454d92c70890dedf5ec22a026af4df067c7b55aa6009b4d34d5da3c6} rise in obesity rates. This is how fake light alters our molecular sense of timing. It has very little to do with 'reward pathways' in the brain. This explains why obesity research has failed to make a dent in the obesity epidemic the world now faces.

Very low levels of dietary Vitamin A is rare, unless you are a strict raw vegan. Liver and eggs are great sources of Vitamin A. I think supplementation is **not a good plan** with Vitamin A because it can these cause symptoms on the high or low side. The key to vitamin A recycling is tight allosteric control in the brain yoking light cycles of the season you are in currently and to your current location on the planet and your diet. This is how vitamin A codifies the photoperiod in maintaining our proper energy balance. ***This is another example of how the quantum world touches biology.***

Light and energy balanced are coupled via the photoelectric

effect. Diet plays a role, but a very small role. The role is designed to be small by evolution, unless you are already **blue light toxic** for any reason. The reason evolution has this built in feature is because excessive blue light is not common at all on this planet. In nature, it is rare to get excessive blue light because it is only a small part of visible light's spectrum. Today, **blue light exposure** is an epidemic because humans have created it in abundance in technology gadgets. These gadgets are used in younger groups and those groups are growing fastest in our tech driven world. This partially helps explain the NHANES charts we all see today.

I think this neurologic condition might really help you understand the how some of the building blocks present in other blogs come together to unlock a modern diseases called "idiopathic".....everything is quantized, and it is time we all begin to realize it.

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More Support: Webinars by Dr. Kruse

- Breast Cancer Webinar and Q&A (October 2012)

Additional Resources

- CPC #5 The Leaky Gut/Adrenal Fatigue Case
- EMF 6: Quantum Time
- Quantum Biology 5: Coherent Water
- EMF 2: Einstein, Meet Leptin
- Why Do We Sleep?
- THE QUILT (Autophagy)
- THE QUILT (Apoptosis)
- Brain Gut 11: Is Technology an Achilles Heel?
- Hormones 101: Clinical thoughts revealed

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