



On the Mathematics of Disease: Multiple Sclerosis and Cancer

Paul TE Cusack\*

23 Park Ave, Saint John, NB E2J 1R2, Canada

\*Corresponding Author: Paul T E Cusack, 23 Park Ave, Saint John, NB E2J 1R2, Canada.

Received: June 03, 2021

Published: September 23, 2021

© All rights are reserved by Paul TE Cusack.

Abstract

Here we consider the affect barometric pressure had on diseases such as cancer and MS. Using the Astrotheology Math solution, we see that cancer rates and MS rates can be partially explained by where we live. Atmospheric pressure is 1 atmosphere at sea level where oxygen levels are high.

Keywords: Barometric Pressure; Cancer; Multiple Sclerosis; AT Math

Introduction

Multiple Sclerosis affect 240 out of 100,000 people in the world. Canada has the highest rate of MS in the world. What I present here is a mathematical examination of how the disease may develop. I've written a paper previously on hydrogen peroxide and how it may lead to caner when it occurs naturally in the body.

First why is Canada the highest rate of MS in the world? There are lots of factors, but most obvious is cold temperatures. The average temperature in Canada is -5 degrees Celsius. This happens to be the temperature that incubate viral infections. I will not deal here with the potential viral infection that could lead to MS. What I do examine is how mathematics may lead to a critical mass of hydrogen peroxide that leads to MS. We begin with the all too familiar plot of the negative exponential function and the competing ln function from Astrotheology mathematics.

Consider the areas below the curves and subtract the area below the ln function.

A2= ∫e^-t from 0.0024 to π

=e^-t
=e^-0 -e^-π
=1-0.432
=0.568

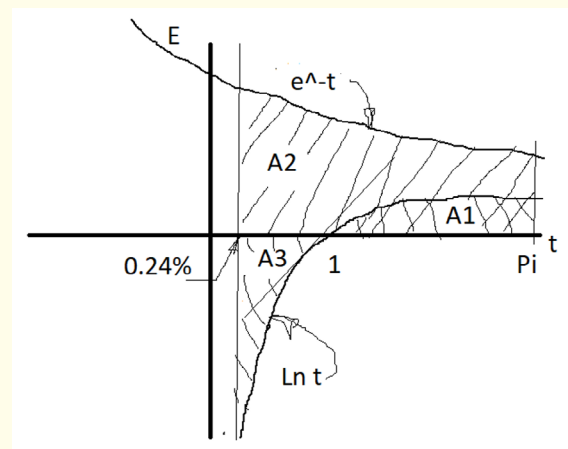


Figure 1: Capacitance of areas.

$$A3 = \int \ln x \text{ from } 0.0024 \text{ to } 1$$

$$= x \ln x - x$$

$$= [0.0024 \ln 0.0024 - 0.0024] - [1 \ln 1 - 1]$$

$$= 23.99 - 1$$

$$= 22.99$$

$$A1 = \int \ln x \text{ from } 1 \text{ to } \pi$$

$$= x \ln x - x$$

$$= [1 \ln 1 - 1] - [\pi \ln \pi - \pi]$$

$$= -1 - 0.4546$$

$$= 0.5453$$

$$\text{Sum} = A2 + A3 - A1$$

$$= 0.568 + 22.99 - 0.5453$$

$$= 23.0$$

$$\sim \ln 1$$

$$E = 1/t$$

$$E = \ln t$$

$$\ln t = 1/t = y = y'$$

$$t \ln t - 1 = \int \ln t = \int y$$

$$t \ln t - 1 = 0$$

$$t \ln t = 1$$

$$e^t = 1$$

$$e^t = 1/t = E$$

$$e^t = E = 1/t$$

$$t = 1/e^{t-e} = t$$

$$\ln t = \int \ln e^{-t} = \int 1 = t$$

$$= e^{-t} \text{ at } t=0$$

Golden mean parabola

$$x^2 - x - 1 = 0$$

$$(\ln \pi)^2 - \ln \pi - 1 =$$

$$2.9968 \sim c$$

$$e^{-t} = e^{57.96} = 1.016 \sim 1$$

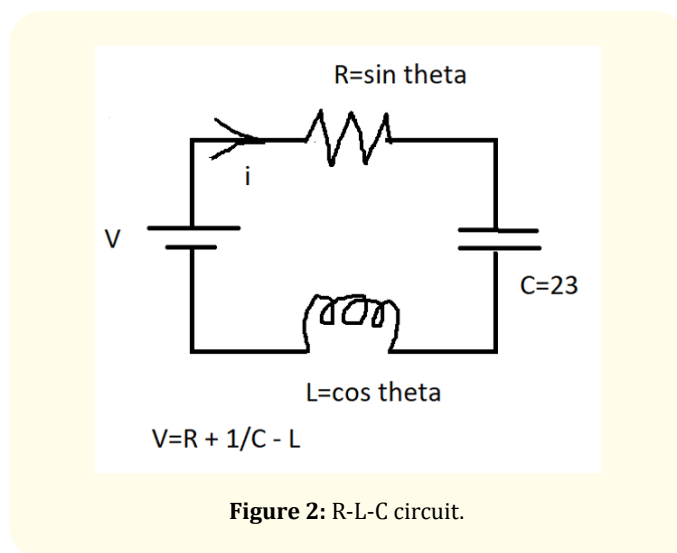


Figure 2: R-L-C circuit.

If we model the area beneath the exponential function less the area beneath the ln function as capacitance, then the R\_L\_C circuit may work to act as a mechanism for balancing the rates of H2O2 production vs T-Cell production.

Note that T- Cell or T-Lucosotes are the basis of the immune system . They are produced when the Thymus gland is active in youth. This suggests that MS may be onset when the Thymus is active.

If we continue with our electrical circuit analogy, we see that the resistor (or the immune T Cells) are balanced by the Inductor coil. The capacitor stores electrical energy up until its maximum capacity with is the area beneath the exponential function from the 0.24% incidence rate of MS, up until the limit of Pi is reached.

$$+V=iR$$

$$V=i\{\sin 45 - 1/23 - \cos 45\}$$

$$=i(1/\sqrt{2} + 0.043478 - 1/\sqrt{2})$$

$$=i/23$$

$$P=V \times A$$

$$=0.0434i^2$$

$$P=i^2 R$$

$$R=0.0434$$

$$\ln R = \pi i$$

$$=t$$

$$E=1/t$$

$$=1/ \ln R$$

$$E \times \ln R = 1 = dE/dt = t$$

Integrate

$$E=t^2/2$$

$$\text{At } t=1$$

$$E=1/2$$

$$T=1/E=1/(1/2)=2 -V$$

$$P=V \times A$$

$$Et=VA$$

$$(1/2)(1)=2A$$

$$A=1$$

$$P=V \times A$$

$$=2(1)=2$$

$$P=E t = 1/t \quad (t)=1$$

$$P=i^2 R$$

$$1=(1)^2 R$$

$$R=1$$

We consider the production of Hydrogen Peroxide by the body. The energy necessary to produce H<sub>2</sub>O<sub>2</sub> is available and is in balance with the energy available and required to form the OH<sup>-</sup> ion. OH<sup>-</sup> is alcohol. I wonder if alcohol is not the culprit attacking the fatty acids on the myelin sheath that protects the nerve axons that will lead to MS? Protein is also present in the myelin sheath. I don't consider proteins here.

Hydrogen Peroxide=34.02 g/mol.

An Oxygen=16.01g/mol which binds with water to form H<sub>2</sub>O<sub>2</sub> (Hydrogen Peroxide).

1 Amp=1Coulomb/sec= 1.602 e- per second.

$$16.01 \times 1.602=256$$

$$E=Mc^2$$

$$=(256) (2.9968)^2$$

$$=23.0$$

$$\ln (23)=\pi i$$

Area from 0- 0.24% =101.325 =1 atm Barometric Pressure.

Bar Press: 101.325 kPa

$$101.3277/0.24\%$$

$$=4222$$

$$=1/23685$$

$$=1/ 3.16 \sim 1/\pi$$

freq of the human mind.

Head + Pressure + Kinematic Energy =C

$$0 + \Delta p + v^2/2g = C$$

$$\Delta p = p_1 - p_2$$

$$= 0.8532 \text{ kPa} - 0.8 \text{ kPa} = 0.532$$

$$\Delta g = 9832 - 9780 = 0.52$$

$$= 0.532 - (66 - 10)^2 / [2 \cdot 0.52]$$

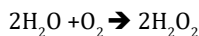
$$= 0.532 - 0.301$$

$$= 0.23046$$

$$= C$$

$$\ln C = 3.137 \sim \pi$$

Scotia is on the Atlantic Ocean, just like Newfoundland and Labrador. Ontario has a population that is strung along the costs of 4 of the 5 Great Lakes. And Nunavut has a long coastline. The extra oxygen comes from the cold air which would explain why Vancouver doesn't have high cancer rates. The rest of Western Canada has the cold air but not the sea mist.



[sea mist] + [cold air] → [hydrogen peroxide]

I wrote a paper entitled Hydrogen Peroxide and Cancer in which I considered hydrogen peroxide as a cancer culprit. This new evidence may point to the right direction for determining the causes of cancers [1-3].

### Conclusion

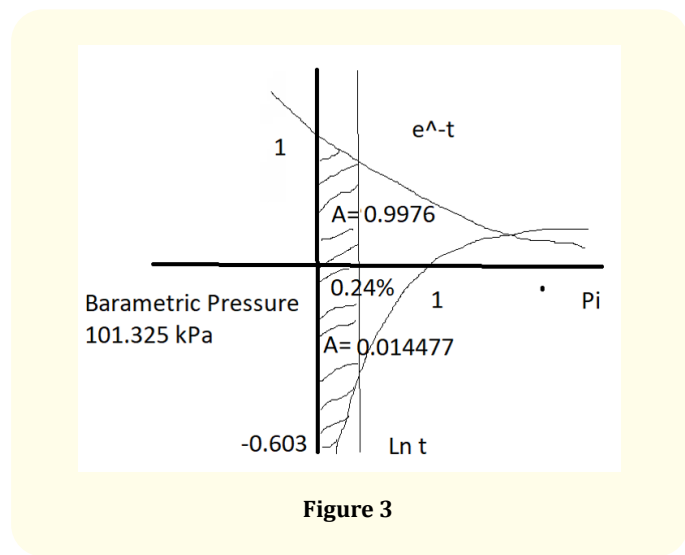
We know that MS is caused by the deterioration of the myelin sheath in the physical nervous system. The body's production of Hydrogen Peroxide could be the chemical basis for MS. The body's immune system may be modelled by an R\_L\_C circuit.

### Bibliography

1. Cusack PTE. *Open Access Journal of Oncology and Medicine* 2.2 (2018).
2. Paul TE Cusack. "Hydrogen Peroxide and Cancer". *Open Access Journal of Oncology and Medicine* 2.2 (2018).
3. Canadian Cancer Society, et al. *Canadian Cancer Statistics* (2019).

**Volume 2 Issue 10 October 2021**

**© All rights are reserved by Paul TE Cusack.**



**Figure 3**

I've written already published a paper on Hydrogen Peroxide and Cancer. The conclusion is that cancer may be caused by excess Hydrogen Peroxide in the body due to chemical stimuli. The same mathematical system in this paper may lead to insight into what causes cancer as well.

It is interesting that the highest rates of cancer diagnosis in Canada are in Newfoundland and Labrador and Nova Scotia, and Ontario. Cancer survival rates are lowest in those provinces as well as in Nunavut. So what is different in these places from the rest of Canada? There may be many different contributing factors, but I suggest that it may be the levels of oxygen and water in the air which leads to high levels of hydrogen peroxide in the body. Nova