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Research Article

DR JOHN HOLT'S UHF RESONANCE – ELECTROMAGNETIC IMPLICATIONS – CANCER AND HIV AN HYPOTHESIS (Number 4)

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ABSTRACT

Dr John Holt (Radiotherapist, Western Australia) trialedradiowave UHF 434 MHz (+oxidizing agent) to treat patients with cancer and human immunodeficiency virus (HIV+), initially using dipole-based antennae, later with loop antennae. He noted that, with the change, the resonance display, a point for objectivity, was diminished/lost. The claimed change in spectral emission is discussed with reference to quantum effects and a proposed explanation for the claimed benefits of UHF for HIV+ and other future viral and Prion disease patients. **Conclusion:** Holt's UHF treatment may benefit both cancer and HIV+ patients.

Index terms: Cancer, UHF, Microwave, HIV+, SIRT2, NQO1, NAD+, Actin, Dynein, Microtubule, Proteasome, ZAP.

INTRODUCTION

Starting early in the 1990s, Dr John Holt treated some 3 patients positive for Human Immunodeficiency Virus (HIV+) with UHF + intravenous Cystine. He claimed gratifying results (Holt 2000b, 2001). The patients may be summarized :

Holt's HIV+ patients treated with UHF+ iv@ Cystine. Details are skimpy for Cases 2 & 3

Case	Gender DoB#	Clinical note	Course
	January 1, 1949*; Male	Herpes & CMV infections; liver failure. Initial UHF July 1992	CD4 &CD8 counts improved; ==>"viral load 0" Seen ~February 2000*. Survival ~12 year
	March 28, 1961*; Male	Acute Lymphocytic leukaemia. Initial UHF date May 1993	Leukaemia outcome unstated. Well (~2000*?) with CD4 ~300 &CD8~1470
	"Young;" Male	Mentation poor; Kaposi sarcomata. Initial treatment date unstated	Mentation improved; sarcomata responded well to radiotherapy

#DoB= Date of Birth; @iv = intravenous *Year

With the potential application of UHF 434 MHz + oxidizing agent for viral infections, key features will be examined. This presentation will examine the delivery of UHF:

- **Antennae and UHF action**

When Dr John Holt irradiated cancer and Human Immunodeficiency Virus (HIV) positive patients with 434 MHz UHF, (Traill 2021) he found that they generally emitted UHF, often with frequencies above the incident, transmitted frequency. This indicated that an endogenous, cellular energy source had been activated, and was contributing to the UHF output. (Because, $E=h\nu$; with E=energy, h=Planck's constant and ν=frequency.) The enzyme NQO1, attached to microtubules and with an ability to catalyse the production of protons and NAD+ from NAD(P)H, seemed likely to be involved. On this assumption, some likely flow-on effects detailed in Holt's writings, were examined :

Cell-to-cell adhesion - reduced capability: Traill 2023a
Increased Radiotherapy sensitivity: Traill 2023b
Augmentation of UHF effects upon cancer with hypoglycaemia and *L*-Glucose: Traill 2023c

Whilst these dissertations may provide some support for the general hypothesis, which proposes that the UHF may indirectly stimulate the activity of the deacetylase SIRTUIN2 (SIRT2), important aspects are not explained:

How the UHF acts in tissues/cells. Most of Holt's work and UHF spectral photographs are pre-1993 – the last identified being August 1993. After ~1992 he changed his clinic address, acquired a new (partially) digital frequency scanner and changed the antenna design from folded dipole to loop (circular) ones and introduced the circular antennae. However, the impression gained was that, by doing so, and using another spectrum analyser, the spectral resonance demonstration was lost. Holt (2003) described this (presumably from memory) in writing: "*Since 1990 when the latest analyser was purchased, it has been quite impossible to record any useful spectra from patients*," (April 1993 (Holt 2001) and August 1993 (Holt 2000b). Verbally, he attributed this failure to the new loop antennae, but without confirmation in written correspondence. An HIV+ patient was treated ~May 1995, with no spectrum photograph. (Holt 2001). The clinical result seemed gratifying, with the lymphocyte T4 cell count rising from ~1050 to 1250 on ~September 1995. Loop antennae may have been used then. If so, the response appeared to confirm the clinical effectiveness of the new antennae (with probable lack of emitted UHF spectral emissions and omitted photographs). That there could be a different response between voltage (E-wave) and

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magnetic (H-wave) UHF may not be a surprise, given the (presumed) complexity of the electromagnetic processes.

If the UHF via loop antennae still confers an anticancer action yet does not emit significant UHF spectral patterns, the conclusion would seem to be that the spectral patterns, whilst interesting and indicative of effects, do not confer a significant anticancer action; they are largely wasted energy. Interest then moves to the cellular UHF target(s); chiefly the enzyme NQO1. The conclusion is that this enzyme is probably induced by the UHF into a hyper-catalytic state.

In this regard, possible explanations follow later:

- **How the enzyme NQO1 is affected by UHF**.
    - We can assume that the UHF stimulates the enzyme NQO1 to split NAD(P)H to NAD^+ and protons; there would seem little likelihood that the NAD(P)H could be derived very rapidly from activated glycolysis.
    - Holt reported gratifying UHF treatment results with several HIV^+ patients. (Holt 2000b, 2001), NQO1 is believed to protect the HIV-1 Tat growth factors (and other largely unfolded proteins) by binding to them and the 20S proteasomes into which the unbound Tat (and other) factors (Lata *et al.,* 2018) would otherwise enter and be degraded (Asher *et al.,* 2005) especially under oxidative stress. The favourable UHF effect on Holt's patients implies that the enzyme NQO1 was specifically inactivated or damaged

with respect to this viral protection, putting a stop to the HIV-1 Tat protein being protected from degradation, but locked its enzyme action(s) almost exclusively into the production of NAD^+, generating NAD^+ & protons by hyper-catalysis, somewhat along some of the lines described for Dicoumarol and Curcumin treatments (Ali *et al.,* 2016; Asher *et al.,* 2005).

The UHF resonance effect would seem to be a "side issue," and a loss of energy. The important effects of the UHF in cancer can instead, be traced back to its effects upon NQO1.

Hardware - Antennae

1) **Dipole**: Holt's initial equipment, (called "Tronado") used a x12 array of "semi-folded" dipoles. Knowledge of these is basic and information is accessible. Holt documented (2000a) "*Antennae. Folded dipole antennae can be used to terminate each coaxial cable but dipole antennae in general are difficult to tune at this frequency (434 MHz) and emit predominantly E-wave (voltage) polarized radiation. This generates electric currents in the skin and the depth dose is poor. They penetrate very poorly through muscles and the solid organs like the liver."*

2) **Loop/Circular**: Much later, Holt(2000a) adopted loop (circular) antennae "*Loop antennae of approximately 19.5 cm diameter can be easily tuned to resonate at the frequency of the generator by altering the diameter and the capacitance of the antenna tail.*"

The general design/make of a circular aerial was for a copper tube, 700 x 4.5 mm to be attached at one end to the core wire of the coaxial cable and bent evenly into a circle of 273 x 274 mm diameter, to approximate the cable attachment site, where it is connected to the outer metal sheath of the coaxial cable, leaving some 160 mm extension. The extension is curved around, following the curve of the first part, but is separated 2 – 15 mm from the former, the gap being varied to tune the aerial. Such an aerial may be considered the first turn of a coil, producing a magnetic flux around the element that is coiled, with similarities to quad antennas.

> "*If the loop is applied to the tangent of the body, it produces a predominantly magnetic field (H-wave polarized) which is not perturbed by body tissue."* (Holt)

However, Holt claimed that, with the loop antennae, the resonance effects seen on the frequency scanners were unsatisfactory/lost (thereby losing an observable/detectable feature) - so "*the assessment is entirely based upon clinical results*," (Holt 2001).

The author used the Holt protocol and circular antennae through the years 2000-2003 and, anticipating interest from officialdom, sought to collect data that may indicate that the treatment had some positive effect in the treatment of cancer. With no special funding for this study, and the need to achieve an outcome in the short-medium time, emphasis was upon blood tumour markers and urine products. Some of these studies are presented below (Appendix):-

SERUM MARKER CHANGES with UHF

Initials	Condition	Serum Marker	Chart feature
	Ca Prostate → bones	PSA	Plateau. New slope less steep
	Ca Breast → brain	CEA	Fall. CEA $t_{½}$ ~ 26 day
	Ca Pancreas - local	Ca19.9	Fall. CA19.9 $t_{½}$ ~ 7 day
	Ca Bowel → liver	CEA	Plateau. New slope less steep. CEA doubling pre-Rx ~23 d, post-Rx ~62 d
	Ca Prostate → bones	PSA	Fall. PSA $t_{½}$ ~10 day
	Ca Bowel → lungs	CEA	Plateau. New slope less steep
	Ca Bowel → liver	CEA	Fall. CEA $t_{½}$ ~23 day
	Ca Parotid → neck	CEA	Fall. CEA $t_{½}$ ~28 day
	Ca liver Figure 1	□-foetoprotein	Fall. □-foetoprotein $t_{½}$ ~29 day α-foetoprotein doubling pre-43 d, post-73 d
	Ca Bowel → liver	CEA	Fall, CEA $t_{½}$ ~8 day
	Ca Breast → nodes	CA15.3	Plateau - flat

Ca=Carcinoma; CEA=Carcinoembryonic antigen; PSA=Prostate specific antigen; $t_{½}$ ~29 day= estimated, extrapolated half-life, pre/post 434 MHz UHF; Rx= treatment.

Summary of patterns

Acute/subacute marker change	Number of patients	Interpretation
	3	Tumour growth slowed
	7	Tumour loss/damage
	1	Tumour growth slowed (mildly)

Total 11

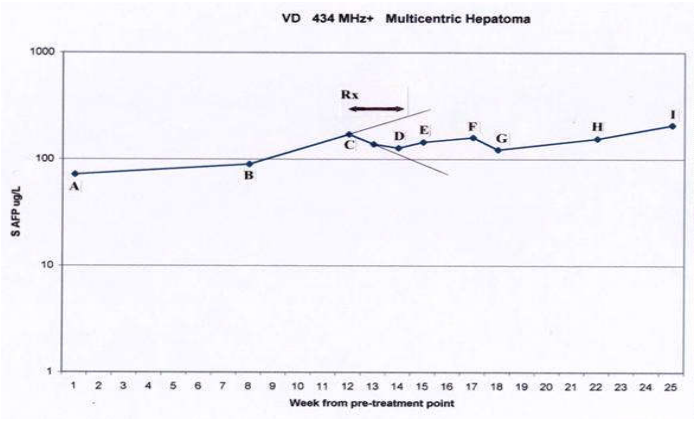

Figure 1: Sequential serum-foetoprotein levels from an elderly patient with a multicentric hepatoma coming on cirrhosis from chronic Hepatitis; the UHF course was between time points C and D. The course may be biphasic.

Thus, there appear to be acute/subacute changes that would be in agreement with Holt's experience and belief that the results were desirable, although comparison with the results using dipoles is not possible. The new implications may be considered, in particular that the generation of the spectral emissions may not be essential for an anti-cancer treatment role. The antenna difference and **Quantum** effects may now be considered :

1) **The Dipole (E) emitter:** The emissions of 434 MHz radiation through tumour and into tumour cells can be assumed to be largely as waveform. However, on reaching a target, such as the catalytic site of the enzyme NQO1, it becomes largely photons. If these are energetic enough, they can displace with violence, electrons from molecules/atoms at the target. The electrons will have added energy transferred from the UHF, will scatter and be relatively free. (The process may have some similarity with the **photoelectric effect**.) The electrons will be able to be drawn into and participate in resonance phenomena

2) **The Circular (H) emitter:** With the emission mainly magnetic, the UHF energy will displace electrons that are loosely bound within linear structures (such as microtubules) that are crossed by the magnetic field lines, (as in the surface atoms of a copper wire). They will be relatively tethered and less able to participate in a resonance phenomenon.

So, there is then the problem of anti-cancer action:

The combined effects would point to the enzyme NQO1 (or other) having its catalytic sites locked by the UHF (from either antenna type) in a **hyper-catalytic state**, generating large quantities of NAD^+, leading to an excess of active SIRT2 (in particular), hence the frequent mention of the SIRT2 enzyme in previous hypotheses.)

The Antiviral action of Holt's UHF treatments.

There may be at least 2 mechanisms for the UHF to have a beneficial action against virus infections, such as HIV-1. For each, the action is indirect :

- **The activation of ZAP** (=PARP13). Earlier, there was a proposal (Traill, 2022) that the Holt UHF treatment would have generated NAD^+, which could then activate SIRT2 and PARPs. ZAP could then exert an antiviral restriction upon the viral mRNA, such as that for the HIV-1 virus (Nchioua*et al.,* 2020), although the effectiveness may be weak when the number of CpG (+cofactor) groups in the viral genome is small (Nchioua, 2020).
- **The UHF may similarly generate NAD^+** which could activate SIRT2, which could then disrupt the maintenance of actin (Traill, 2023a) or actin-like forms in Dynactin (Canty & Yildiz, 2020), an essential component of the dynein motors (Badieyan, 2023) that transport viruses and cellular components towards the negative end of the microtubules (i.e. to about the region of the centrosome/centriole/nucleus) for delivery of viral elements to the nucleus.

The dynactin molecules contain some 12 different proteins and are built around filaments of actin-related protein (Arp-1) with capping proteins Arp11. The dynactin filament contains eight Arp-1 subunits and one β-actin, with other components CapZαβ, p25, p27, p62, and $p150^{Glued}$, p50 and p24. "T*he dynactin filament is similar to that of actin*" (Urnaviciu*s et al.,* 2015). If one or more of these components are damaged by (say) cofilin (+/- Mica), driven by SIRT2, (Min *et al.,* 2018, Rajan, *et al.,* 2023) the dynein motor complex may be severely compromised and the ability for the viruses to complete their intracellular transit lost.

Judging by the striking "mesenchymal-like" appearance of the leiomyosarcoma presented by Figure 2a and Figure 2b (Traill, 2023a) sampled 41 days post UHF treatment (loop antennae), the cellular recovery phase must be very long. In this regard, Holt's HIV^+ Case 1 (above) had only 4 UHF treatment courses in ~12 years, the last in 1995, reporting as *"physically normal*" in 2000.

Clinical Application: Dr John Holt reported that he treated3 HIV^+ patients with UHF 434 MHz + (oxidizing agent) and that the results were gratifying, to the extent that he believed that at least one had been cured. These patients were in the chronic stage of their condition. There is now the need to confirm the general nature of his work, particularly with the possibility that the treatment could be applied to acute viral infections, such as Ebola. With Ebola infection, an intracellular viral component attaches to a part of dynein (Lim *et al.,* 2021), being a vulnerable point.

Current treatments for HIV^+ do not cure the patients, (Nchioua, *et al.,* 2020) merely holding the infection in a dormant state. For a young, fit patient, a cure with UHF could reduce the therapeutic financial burden for the rest of the patient's life and, if poor compliance is a possibility, reduce the risk of spreading the infection.
More research is indicated.

Appendix: This preliminary study was supplied to the National Health and Medical Research Council's Review (Shine, 2005). It was acknowledged, but otherwise ignored, concealing evidence that might have supported Holt before the biased Committee.

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