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REVIEW ARTICLE

AD, AFP, ALS, and DDT

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ABSTRACT

There is a disturbing fixation on a single virus, the poliovirus, being the cause of the disease Polio. Meanwhile tens of thousands of cases of non-poliovirus Acute Flaccid Paralysis (AFP) are on the rise. The poliovirus is but one of many types of enterovirus that will cause paralysis in the presence of the appropriate toxic co-factors. The evidence that organochlorine pesticides are co-factors in multiple neurological disorders, not just AFP, is unequivocal. Pesticides are implicated in diseases such as Alzheimer's, Parkinson's disease and amyotrophic lateral sclerosis. There is more than one family of pesticides causing toxicity problems for humans, but DDT use is a big offender, but not as big as our myopic blindness to the actual etiology and pathology of the many neurological disorders that plague us. It is simply beyond reason as it could jeopardize the survival of the human race.

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INTRODUCTION

"Money is our madness, our vast collective madness."

D. H. Lawrence

According to the National Institute of Aging, one of the National Institutes of Health in the United States (National Institute on Aging, 2015), "Alzheimer's disease is the most common cause of dementia among older people. Dementia is the loss of cognitive functioning-thinking, remembering, and reasoning-and behavioral abilities, to such an extent that it interferes with a person's daily life and activities." The University of Michigan Health and Retirement Study (HRS) is a longitudinal panel study that every two years surveys a representative sample of more than 26,000 Americans over the age of fifty (Institute for Social Research University of Michigan, 2015).

The results of this survey imply that well over half of adults over the age of seventy go undiagnosed and untreated. In the United States, more than 5 million people currently live with Alzheimer's Disease (AD), including one in nine people greater than the age of sixty-five years (Alzheimer's Association, 2014). Therefore, one could postulate that the true incidence is well over 10 million Americans.

An estimated 700,000 Americans will die with AD (Weuve *et al.*, 2014) in 2014, for ultimately AD is not just a neurocognitive disorder but also a fatal, incurable disease. Or is it?

Officially, AD is a disease of unknown etiology. However, it is widely accepted that most AD is not directly genetically inherited and that some external vector, such as a toxicant

exposure or an infection, must be involved for the disease to progress into a clinically observable condition.

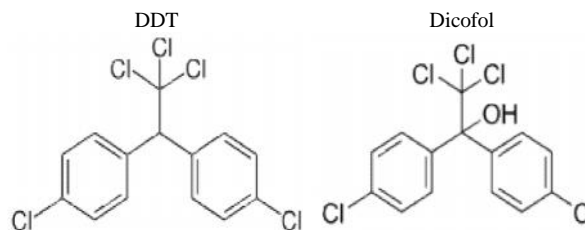
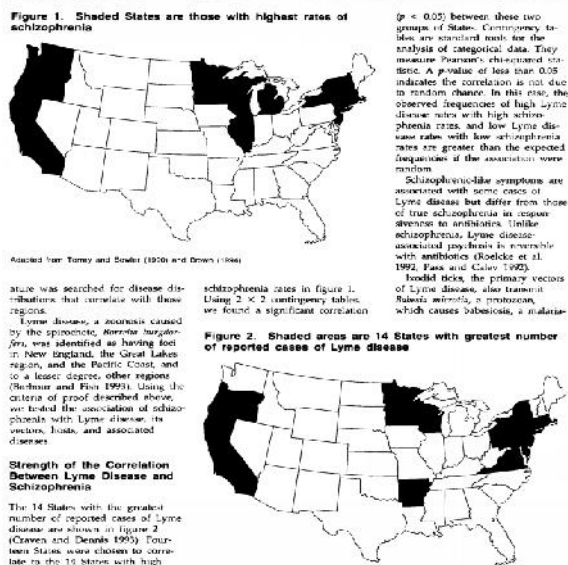
If an infectious agent were involved, it seems as if it would have been identified by now. Indeed in 2011, meta-analysis (Miklossy, 2011) found bacteria called spirochetes in the brain in more than 90 percent of AD cases. *Borrelia burgdorferi* was detected in the brain in 25.3 percent of AD cases analyzed and was thirteen times more frequent in AD compared to controls. Periodontal pathogenic *Treponemas* (*T. pectinovorum*, *T. amylovorum*, *T. lecithinolyticum*, *T. maltophilum*, *T. medium*, *T. socranskii*) and *Borrelia burgdorferi* were detected using species-specific PCR and antibodies. Importantly, co-infection with several spirochetes occurs in AD.

In 2014, a randomized double-blind and controlled (RCT) trial (Liu, *et al.*, 2014) found that minocycline significantly improved the negative symptoms of schizophrenia. What were credited were the known anti-inflammatory properties of minocycline, not that it might actually be treating an infection. This mistake gets repeated over and over in medicine - so close to the truth but so far from reality. It is of interest to note that a 1994 map of the United States shows that the distributions of Lyme and schizophrenia are almost identical (Figure 1).

If these research results were embraced, an obvious intervention would be to bring diagnostic testing to a much higher level of usefulness than exists today; to screen widely for these organisms (not done today); and then to treat the infection(s). This would help those who have and will get Lyme disease, and other opportunistic infections, as well as those at risk for dementia. What could be the reason why this is not happening?

In early 2014, an article published in *JAMA Neurology* (DeKosky *et al.*, 2014), had Rutgers scientists discussing their findings in which levels of DDE (dichloro diphenyl dichloroethylene) were higher in the blood of late-onset Alzheimer's disease patients compared to those without the disease. DDT doesn't break down to any great extent, but it will lose a hydrogen atom (hydrogen chloride [HCL] to be exact). DDE is just as deadly and should just be considered another form of DDT.

DDT in the first world was all smoke and mirrors, and no one-no agency, was willing to stand up for the citizens of this planet, no one in positions to do something to stop this and allow the rest of us to be fooled-dicofo(o)led.



**Figure 2** The chemical structure of the two virtually identical pesticides DDT and dicofol

Rutgers scientists directly linked a specific chemical compound to Alzheimer's disease, that is, DDT and DDE, and it is no great leap to postulate that DDT and DDE increase the incidence of neurospirochetosis by injuring the immune system that is already synergistically predisposed by other toxins and heavy metals.

Again, this bears repeating: if we are to believe the researchers from Rutgers, DDT and DDE are directly linked to Alzheimer's disease not an association, not some vague possible causality a direct link. Therefore, the conscious use of anything with DDT and DDE in it would be the deliberate use of a substance to cause harm for greed. There are, after all, substitutes to these insecticides, so using deadly insecticides that don't degrade, when there are substitutes is the purposeful and willful act of harm to humanity and life on this planet.

What other illnesses is the DDT insecticide family responsible for?

This class of insecticide (organochlorine) impacts the electrical activity in the body, so it affects brain and heart, but also there are other organs that use electrical current, including the lungs. It clearly affects the immune system and causes cancer, and the best part is that it doesn't break down in the environment other than to become DDE (and DDD).

In 2009, A study was published titled "Organochlorine and heavy metals in newborns: results from the Flemish Environment and Health Survey (2002-2006)" (Koppen *et al.*, 2009) - "p,p'-DDE and Pb were measurable in nearly all samples." So, what that tells us is that DDE has now become ubiquitous-it is everywhere and in everybody and is given to everyone so that a chemical company can make money. That is the only reason, for if this were just about insect control, there are alternatives.

Now, there is a treaty, the *Stockholm Convention on Persistent Organic Pollutants*, signed in 2001 and effective from May 2004, that aims to eliminate, or restrict, the production and use of persistent organic pollutants (POPs). But DDT is not required to be eliminated-only restricted. DDT has friends in high places, so to speak, and they insist it is still needed for disease vector control: malaria. Dicofol isn't even on the list even though it is DDT (but for the edition of that little OH [hydroxyl] group.)

Dicofol aside, DDT continues to be used with abandon.

A decade earlier the article "Neurodegenerative Diseases and Exposure to Pesticides in the Elderly" clearly made the case for occupational pesticide exposure and AD and Parkinsonism. The point is that the connection between pesticide exposure and both human and animal diseases, especially neurological diseases, is not an unknown mystery or conundrum.

What we have is a catastrophic failure of governments around the globe to keep agribusiness from controlling the food supply while also controlling both seed and pesticide. It is as immoral as it is odious.

Why did we let this happen?

DDT was/is used in the United States to control insects in crops and livestock and to combat insect-borne diseases. It was introduced as a pesticide during WWII. In the United States, the general use moratorium took place in 1972, but there is another pesticide . dicofol, which is made and sold by Dow AgroSciences and carries the trademark KELTHANE®, is in fact DDT. In China dicofol is produced by the Yangzhou Pesticide Factory, which reports production quantities of 4 million pounds of dicofol per year.

It is also produced in Brazil, India, and Spain. Make no mistake: dicofol (Holder, 1986) is DDT, and in fact synthetic estrogens, such as ethinyl estradiol (EE2), have less in common with estrogen than dicofol has with DDT . only one little hydroxyl group added to DDT turns it into dicofol. It seems inconceivable: if DDT were a pig, dicofol would be that same pig with the smell of beer on its breath. The ban on

Think about 10 million pounds of DDT being sprayed in Africa per year alone (Subramaniam *et al.*, 2014), and it makes those populations prone to both poliovirus-facilitated Acquired Flaccid Paralysis (AFP), as well as non-polio enterovirus AFP. Ethiopia, South Africa, India, Mauritius, Myanmar, Yemen, Uganda, Mozambique, Swaziland, Zimbabwe, North Korea, Eritrea, Gambia, Namibia, and Zambia are all using DDT (not just dicofol, but straight DDT). Who benefits if we all believe polio is just about a virus - a single virus?

The family of viruses that causes AFP belongs to the enterovirus (EV) family, but the immune system has to be compromised for them to wreck havoc on the nervous system; otherwise, they just remain a relatively benign family of viruses. Consider the possibility that the infamous "polio" epidemic was a man-made environmental catastrophe where a relatively benign family of viruses opportunistically took advantage of those with a compromised immune system because their bodies were subclinically poisoned with pesticides.

In 2006, the World Health Organization (WHO) changed its policy and told malaria affected countries to use DDT-and they do. There are over 200 million cases of malaria worldwide and close to a million deaths. Well over 90 percent of all of this activity takes place in Africa, and children are disproportionately affected. This is a very serious infection, but the fact is that no one is going to get rid of all the malaria vector mosquitoes using DDT, and that alone makes DDT use unsustainable. So, where does that leave all of us?

India, which manufactures and uses the most DDT, was declared free of polio in 2011, but cases of AFP have skyrocketed. The Ministry of Health & Family Welfare (MoHFW) made a big announcement in June of 2015 that, "India is polio-free. The country reported its last case of wild poliovirus in 2011. After three consecutive polio-free years, the South-East Asia Region of WHO, comprising of 11 countries (including India), was certified polio-free on 27 March 2014. Despite this progress, India has maintained a high vigil and ensured that no complacency sets in order to maintain the polio-free status for the last more than 4 years. It has taken appropriate actions to ensure high population immunity against polio as well as for maintaining a sensitive surveillance system for poliovirus detection."

It seems the poliovirus is the goal of eradication - not the disease of "polio" itself (AFP). The 53,000 cases per year of AFP are not from the poliovirus, but it is still polio. Polio is a type of AFP. More than the poliovirus can cause AFP. It is called non-polio acute flaccid paralysis (NPAFP). Yet no one seems to be too bothered by the rising NPAFP numbers or why they are even there - just a big mystery? If there is no effort to identify the EVs causing NPAFP, or learn why humans are vulnerable to them, the eradication of the poliovirus is all subterfuge.

Just like those who still believe the earth is flat, there will always be those who think that DDT is indispensable to any malaria control program. In 2011, researchers published an article (Pedercini, *et al.*, 2011) showing that focus on non-DDT insecticide-treated bed nets and environmental

management show higher levels of cost-effectiveness. Treated bed nets and environmental management would also allow phasing out DDT in a cost-effective manner.

The bottom line is that using DDT is not a sustainable solution, and it is obviously having a significant impact on human health as there is a lot of fallout from using DDT. It is causing a lot of human disease and misery that is not being factored into the equation (by those with good intentions or not) and then there is dicofol added in for good measure.

If it were acknowledged that DDT could be responsible for Alzheimer's disease, at least in part, and is responsible for allowing EVs to be so destructive to the human central nervous system - if just those two items came to the fore, you can bet the world's citizens would not tolerate the use of DDT. It would be a must for elimination by the Stockholm Convention, but the truth of DDT's dangers and presence were always obfuscated it seems.

Here is but one example of what has been hidden from the public in plain sight: "Poliovirus infection. In the poliovirus experiments. It is evident that at the 20 and 40  $\mu\text{g}$  levels of DDT, the yield of virus per cell was increased 37 and 90 percent, respectively." This was from an unclassified paper, "Studies of Biologically Active Agents in Cells and Tissue Cultures" (Gabliks 1967) from the US Army Medical Research and Development Command (with MIT). Then two years later the article was published (Gabliks *et al.*, 1969) in the *Annals of the New York Academy of Sciences*. If you didn't catch the significance of what you just read, it came right out and said that DDT increased the replication of poliovirus in human cells up to 90 percent. It is reasonable to postulate that it could also increase the replication of other non-polio EVs in human cells.

The virus (es) that cause polio and NPAFP have been around for a very long time, but then something changed, and an apparently harmless class of gut viruses started causing AFP. That something was pesticides such as DDT, but not exclusively the organochlorines class.

The eradication of a single viral co-factor in an environmental illness, that isn't being acknowledged as an environmental illness, is a conundrum.

The second most common neurodegenerative disease, after Alzheimer's, is Parkinson's disease (PD). Neuronal protein accumulations called Lewy bodies - a pathologic feature of PD- are also found in the brains of Alzheimer's patients (Lewy bodies are a collection eosinophilic inclusions often with misfolded  $\alpha$ -synuclein fibrils); conversely PD-afflicted brains often contain the amyloid protein aggregates common to Alzheimer's.

There is an enzyme called cytochrome P450 2D6 (CYP2D6), which is what metabolizes and eliminates 25 percent of prescription drugs, and if one is a poor *metabolizer* because CYP2D6 has a genetic polymorphism, then that doubles the risk of developing PD (Mellick, 2006).

Paraquat<sup>®</sup> exposure increases the risk of developing PD 2.5-fold, and many pesticides are associated with increased PD

risk by inhibiting an enzyme called ALDH, which also detoxifies the dopamine metabolite DOPAL. When the enzyme isn't working properly, DOPAL builds up in neurons and may explain the loss of dopaminergic neurons in PD.

A *dismutation* of the copper-zinc superoxide-dismutase (CuZn-SOD1) gene occurs in about 20 percent of hereditary amyotrophic lateral sclerosis (ALS). SOD (superoxide dismutases) are enzymes that break up the toxic superoxide ( $O_2^-$ ) radical into either ordinary molecular oxygen ( $O_2$ ) or hydrogen peroxide ( $H_2O_2$ ). Obviously, a less-than-stellar ability to rid the body of these dangerous free radicals could really impact on our physiological integrity when exposed to poisons that increase the need to detoxify free radicals.

Nevertheless, the latest research (Choi *et al.*, 2005) shows that AD, PD, and ALS share a common, or at least overlapping, pathologic mechanism(s). Now, this implies that AD, PD, and ALS are essentially the same disease with a slight variation on a theme. The theme is pesticide poisoning, and there is a synergistic effect (Uversky *et al.*, 2002) of heavy metals (think aluminum and mercury) with pesticides in the creation of the misfolded  $\alpha$ -synuclein fibrils (Lewy bodies). Pesticides directly accelerate the rate of  $\alpha$ -synuclein fibril formation (Vladimir *et al.*, 2001). Add onto this various opportunistic biological issues, such as the neurospirochetosis that are present in 90 percent of the brains of AD patients in the United States, and you can see that this more than about just one thing. Pesticides affect the microglial cells (Taetzsch *et al.*, 2013) in the brain, and these specialized white blood cells simply don't do their jobs helping to clean up and protect the way they are supposed to do. I know there is a pharmaceutical company, even now, trying to bring to the market a drug that will revive microglial function. The company may even think it as a quasi-cure for some of these disorders, but as always they will side-step what poisoned the microglia in the first place.

## CONCLUSION

The general public must be made aware of the truth behind so many modern maladies, for only the public will demand the changes needed to enhance human survival. It is clear that governments, regulatory agencies, treaties and conventions do not do the job. In fact, many have their own agendas that are not in the public's best interest or are fully under the control of large corporate agendas. We have given away our trust to those who don't deserve that trust and then collectively we have done nothing to monitor whether those we have given great responsibility are actually responsible. That too is part of our insanity. The choice is clear – we either detoxify our farming and public health interventions from noxious chemicals or we become prey to them.

What if we really demanded scientific transparency and we really held accountable anyone, any company or even any government that consciously or unconsciously peddles poison and death? What good is a treaty or a law that isn't enforced? We must stop the practice of allowing those that control seed and the food supply to also be those that determine how to farm, and control pests and unwanted weeds. We must expose the true nature of public health interventions and demand best

evidence that they are both safe and effective. Insanity is the only word to describe the situation today where we celebrate the eradication of a virus that is but one of many that can act as co-factors in a disease caused by the wrong pesticides used in the wrong way.

The use of DDT isn't even on anyone's radar, so to speak, in the United States. The general public, if they even know what it is, thinks it was banned in 1972. Dicofol is a name only a few chemists or farmers might recognize even though it is DDT. Who benefits from this insanity? Why do they feel they benefit? These questions need to be answered soon; for only by having the answers to these questions can we cause the change that needs to take place. The enemy is not a virus, and it never was - the enemy is us.

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