

Osteopathy and Influenza

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A man sprays the air during the 1918-19 influenza pandemic.

Introduction

It seems with increasing embarrassment that the osteopathic profession, in US and UK, have to endure a legacy of their past. With regular occurrence the osteopathic successes of the past slowly begin to surface. Unfortunately it is due to a lack of 'modern scientific' explanation that the osteopathic profession denies any knowledge of these successes simply dismissing achievements by the very physicians upon whose shoulders modern osteopaths stand. One such embarrassment is the treatment of influenza.

While researching for other publications over the past 15 years I came across papers and articles on the treatment of influenza. Not just one or two papers and articles but running into treble figures all in osteopathic journals. If there were so many papers why had nobody mentioned this in osteopathic training and during continuing professional development? What I have discovered is fascinating. It was not that modern osteopaths didn't know the treatment of influenza but they actively denied any knowledge of influenza treatment, until recently.

In this short essay/compilation I will try to explain how the osteopaths managed, treated and saved the lives of thousands especially during the 1917-18 pandemic in which an estimated 70 million died world wide. I will refer to old and new documents giving references of source material that will allow you to follow up any further investigations.

The first recorded cases were French soldiers in the trenches during WW1. There is no evidence that even though it was called Spanish flu that it originated from Spain, in Spain they call it French flu. In Britain the earliest cases were in Glasgow and in the following months over 200,000 people died throughout Britain.

What the Journals Say.

Ward (1937) gave an interesting introduction to influenza when he wrote:

“Influenza is regarded as the last and greatest uncontrolled pestilence and continues to challenge the best efforts of the osteopathic school of practice to marshal its scientific resources to combat it.

“It is interesting to note that the word *influenza* was first used by the Italians in 1743 to denote some *influence*, as it was thought then that this disease, heretofore known as “epidemic catarrh”, was caused by an influence of unknown origin, probably the stars, while to the French influenza was known as *la grippe* from the word *agripper* to attack.”

It may have grabbed your attention that the first paragraph talks of influenza and osteopathic practice. It definitely grabbed my attention while researching for other publications. I have now turned towards the issue of osteopathy and influenza to try and clear once and for all the major role of osteopaths in the 1917-18 pandemic of influenza for the public and for the modern osteopath.

Ward continued...

“The influenza pandemic gives us two strings to our bow. Never in the history of the civilized world has there been such evidence of incompetence in the medical profession as in its abject failure to meet the present situation. Not only is the medical profession aware of this, but the lay public has received a jolt in its confidence in medicine which will last many years. Six million deaths in three months is the price paid by the world for the incompetence of loudly lauded modern medicine. Half a million American lives is the price paid by this country, more than our total casualties in the war.”

In an editorial of *The Journal of the American Osteopathic Association* (JAOA), January 1919, R. Kendrick Smith, D.O., Boston wrote:

“Osteopathy’s opportunity is today at its zenith. The necessity for osteopathy was never so apparent. And yet the danger to osteopathy looms more menacing than ever before. One of the greatest dangers is in the possibility that the osteopathic profession will not rise quickly enough to meet this great opportunity. Delay spells ruin for osteopathy.”

Unfortunately the osteopathic profession didn’t “rise quickly enough to meet this great opportunity” and osteopathy was ruined both historically and as a system of medical reformation.

The above reflects the feeling among osteopathic physicians during and after the epidemic towards the medical profession due to the arrogance of its approach and the reluctance to join forces with the osteopathic profession. Why is it that the only epidemic the medical profession scares us with is the one they have little power over, the deadly bird flu? As you will read the medical profession will once again fail to join forces with the osteopaths and again there will be a disaster. Television programmes, newspaper and magazine articles are flooded with the fear of a bird influenza epidemic. Yes, it may be on the way but I have a feeling that the medical profession is trying to set a stage of disaster so that the real disaster won’t seem as bad as their predictions. Anyway this essay and compilation is about the potential of osteopathy and the failure of the osteopaths not the failure of medicine.

Papers published in the JAOA after the epidemic were under the title “*Experience with the Epidemic.*” It is around these personal experiences that the greatest contribution to the reality of clinical practice comes to light. You may be unaware that osteopaths in the United States have complete rights to prescribe drugs and perform surgery as doctors do in the United Kingdom. Osteopaths in the US are physicians and surgeons who as part of their initial training were taught to use their hands. Here are a few extracts sent to *The Journal* by physicians.

“Regarding the “flu” I wish to give my experience with it during the past epidemic...Handled thirty-seven cases of well defined “flu” having omitted all cases not well defined.

“Their ages ran from 3 years to 60 years. The highest fever in any case that I attended from beginning was 103 degrees; the average duration of fever two and two-third days; average duration of treatment four and one-half days. Had no cases of pneumonia. One case threatened with it, but did not develop, and was free from symptoms in twenty-four hours.

“The results that I have got have left a very strong impression with the people that osteopathy is the treatment for the “flu”. One person told me that the M.D. (medical doctor) told them if they get the “flu” to call the osteopath. No doubt many have had more cases than I and if they gave good or better results, osteopathy has gained many friends.”
Geo. Moffett, D.O., Elizabeth, Ill. (JAOA, Feb. 1919).

“Had four cases of advanced influenzal pneumonia that had been under the care of medical doctors before I took them on; two of these died.

“I feel that the recent epidemic has been the means of bringing osteopathy into prominence, in my community, much more than anything else that has ever happened, as I have been called into many homes to treat “flu” patients where I had never been called before.

“In closing let me say that I am the only osteopath in the largest county in Iowa.”
L. V. Andrews, D.O., Algona, Iowa. (JAOA, Feb. 1919)

“During the past six months we have treated 140 cases of “flu.” Nothing ever happened in our sixteen years practice that has given us so much confidence in osteopathy in acute cases. It has given us an experience in well defined infections. We have always thought that the whole body had wonderful recuperative powers if properly influenced by osteopathic manipulation.”
E. H. Cosner, D.O., Dayton, O. (JAOA, Feb. 1919)

“I had 186 well-defined “flu” cases. Only one death (apoplexy). In my community only three deaths from “flu” and all treated by M.D.s and the community is continually crying for more osteopathic treatment. It has made an impression on the community that will never be forgotten.

“We need more than anything a public lecture on osteopathy two times per year at the county seat. The people are hungry to know the best way to keep well and if I was able to do this osteopathy would forever bloom in this community. Osteopathy is the principle topic in the gatherings for the last two months.”
J. L. Fetzer, D. O., Dalton, Mo. (JAOA, March, 1919)

“In my practice we have treated over 150 cases which showed definite symptoms of influenza, and our death rate so far is zero.”
L. M. Bush, D. O., Jersey City, N. J. (JAOA, March, 1919)

“One hundred per cent efficiency is the only term that correctly describes osteopathy as the rational and reliable therapy for universal use in cases of Spanish or any other type of influenza.

“To date I have had eighty-seven cases of this particular disease without a single death; no pneumonia or other complication of any kind whatsoever. There is not an M. D. in this vicinity with such a record and the “dear public” is finding out something of the value of osteopathy as compared with ancient medical methods in the care of really acute and dangerous diseases.”
James A. Cozart, D. O., Canonsburg, PA. (JAOA, March 1919)

“in summing up will say that osteopathy has made a wonderful impression on the community. Three of us here, Dr. Yoder and Dr. Olmstead, also reported great success. We

note that the patients that have died have been those who were drugged, allowed to eat at will (that's poison) or disobeyed instructions. Have had five cases of "flu" during pregnancy and all got well."

W. L. Burnard, D. O., York, Neb. (JAOA, April, 1919)

"I had 150 well defined cases of "flu." Gave two treatments per day for three days.... It made a great impression upon the public and has brought me more patients than I have been able to handle."

W. B. Linville, D. O. Middletown, O. (JAOA, April, 1919)

The Journal from 1919 continues to publish the experiences of osteopathic physicians in the United States up to the present day.

"The 2-year influenza outbreak that occurred between 1918 and 1919 was a worldwide epidemic. Original estimates placed related fatalities at 21 million, 1% of the world's population at that time. Several recent estimates place the number of fatalities at 30 million.

"In the United States, more than 28% of the population succumbed to the disease overall. In US military hospitals, the mortality rate averaged 36%, while the mortality rate in US medical hospitals fell between 30% and 40%, with the exception of a rate of 68% in medical hospitals in New York City.

"The osteopathic medical profession had few hospitals then, but the American School of Osteopathy, now the Kirksville College of Osteopathic Medicine of A. T. Still University of Health Sciences, in Kirksville, Mo, contacted all their alumni. This effort culminated in 2445 osteopaths responding in treating 110,122 patients with influenza, with a resulting mortality of 0.25%. One of the few osteopathic medical hospitals, 400-bed Massachusetts Osteopathic Hospital, in Boston, also reported a mortality of 0.25% for that period.

"Why the difference in outcome? Allopathic medical treatment for patients with influenza consisted of cough syrup and aspirin, treating the fever as a symptom, rather than recognizing fever as the body's response to an infection. And as Andrew Taylor Still, MD, DO, stated in his autobiography, "Fever is a natural and powerful remedy."

"In contrast, osteopathic medical treatment for patients with influenza consisted of cough syrup, yes, but also gentle OMT (osteopathic manipulative treatment), resulting in a dramatic difference in mortality. Thomas L. Northup, DO, has reported that the same mode of therapy is effective in patients with pneumonia."

Harold I. Magoun, Jr, D.O., More About the Use of OMT (Osteopathic Manipulative Treatment) During Influenza Epidemics, JAOA, Oct. 2004.

"A pandemic virus will likely be unaffected by currently available flu vaccines that are modified each year to match the strains of the virus that are known to be in circulation among humans around the world," according to Tommy G. Thompson, secretary of Health and Human Services. Each year, currently available flu vaccines are modified to match virus strains that are known to be in circulation among humans globally. Of concern is that such strains will likely be ineffective against a pandemic virus. Of primary concern, however, is the time required to produce a vaccine against a new virus strain, possibly one that is created by genes of the A(H5N1) strain of avian influenza combining with the genes of a human influenza strain.

"We have a precedent in our own history—the success of osteopathic care of patients with influenza during the pandemic of 1918. In a paper, the first admitted and read before an "old school" medical convention, R. Kendrick Smith, MD, DO, presented statistics showing the "osteopathic conquest of disease in which medicine has failed.

“Dr Smith reported that mortality among a total of 110,120 patients with influenza treated by the 2445 members who reported "authenticated detailed case reports" to the American Osteopathic Association was 0.25%. Mortality due to influenza in patients receiving traditional medical care, however, was ultraconservatively estimated at 5% to 6%. Among patients with pneumonia treated medicinally, mortality was estimated at 33%, and even as high as between 68% and 78% in some large centers. The death rate due to pneumonia among 6258 patients cared for by osteopathic physicians was 10%.”

Gilbert E. D'Alonzo, Jr, DO, AOA Editor in Chief, Influenza Epidemic or Pandemic? Time to Roll Up Sleeves, Vaccinate Patients, and Hone Osteopathic Manipulative Skills. JAOA, Sept. 2004.

“However, the lessons learned within the osteopathic medical profession as a result of the 1917-1918 pandemic could prove useful once again if (or when) a new influenza pandemic occurs. As AOA editor in chief, Gilbert E. D'Alonzo, Jr, DO, noted in his 2004 editorial, "Influenza epidemic or pandemic? Time to roll up sleeves, vaccinate patients, and hone osteopathic manipulative skills," influenza patients treated osteopathically during 1917-1918 had a 0.25% mortality rate, as compared to the national average of 6% (and 10% for pneumonia patients, compared with 33% to 75% for the national average).

“In 1918, C.P. McConnell, DO, reported that the most effective treatment during the influenza pandemic was begun early in the onset of symptoms (within the first 24 hours) and consisted of carefully applied muscular relaxation and, most importantly, relaxation of the deep and extensive contractions of the deep spinal musculature and mobilization of the spine. These treatments would be repeated two or three times early in the course of the infection, along with traditional supportive measures such as hydration. During later influenza epidemics, such as the 1928-1929 and the 1936-1937 outbreaks, various lymphatic pump treatments and more attention to the cervical and upper thoracic regions were added to this recommended treatment protocol. These treatments, individualized to each patient's needs, were apparently the most commonly applied osteopathic medical procedures during the epidemics.”

Michael M. Patterson, PhD, The Coming Influenza Pandemic: Lessons From the Past for the Future. JAOA, Nov. 2005

“The victims of the deadliest flu pandemic in history were killed when their bodies unleashed an uncontrolled immune reaction as a protective mechanism, say scientists. Patient's lungs rapidly became inflamed and filled with blood and other fluids which eventually drowned them.

“In the latest experiment scientists used re-constructed virus to infect macaque monkeys. They found that the over-reaction of the immune system destroyed the monkey's lungs within weeks.

“Scientists believe the 1918 virus had the same effect on humans. “There was some surprise that it was that nasty. It was the robustness of the immune system that helped victimise them, said Michael Katze, a microbiologist at the University of Washington in Seattle, who took part in the research. “That breaks the paradigm as always thinking of the host response as protective.”

It might explain why the 1918 flu virus killed so many healthy adults in their 20s and 30s; conventional influenza prays mostly on babies, the elderly or sick.”

Alok Jha, Scientists reveal how world's worst flu killed 50m. The Guardian, Thursday January 18 2007, p.9.

It seems that the osteopathic profession is denying its past, present and potential future. How can this be and why is it being ignored?

The original discoverer of a “system of natural immunity” was Dr. Andrew Taylor Still, M. D., an American Civil War surgeon in the second half of the 19th century in North America. Notice how his discovery was a “system of natural immunity” not a treatment for back pain, tennis elbow or any other muscle and joint problems. This system of natural immunity was before Louis Pasteur and other medical scientists that have gone on to fame.

How Osteopaths Treated Influenza

Before we can understand how osteopaths treated influenza a few facts and misconceptions have to be cleared up.

During the late 19th and early 20th century in the US osteopaths did not manipulate the same way they do today. They were true physicians, the word meaning to return to normal. As I have mentioned, medication and surgery were part of the osteopaths fight against disease in addition to nutrition and exercise. Over the years manipulation has changed from a surgical approach, where you treated what you found based on the anatomy in front of you, to the learning of procedures before you saw the patient and then applying the technique to the patient. What’s the difference? In the first case the osteopath would reason with the situation at hand never repeating the same approach twice. In the second case a technique is taught by mimicking the actions of another osteopath. You then apply the technique to the patient. This is not tailor-made for the patient and is ineffective for the patient’s personal problem.

Modern manipulation is similar to going to football (soccer) training learning the drills and then trying to repeat the drills exactly as you learnt them during a game. The end result is no game and very dull.

The object of manipulation is to improve circulation (blood and lymph) to and from organs, the movement of joints and muscle and in fact all tissue.

A major misconception about influenza (or any infection) is that the virus causes the symptoms of sweating, headache, sore throat and an overwhelming desire to lie down. It doesn’t. People can be carriers of the virus without ill effects.

Briefly this is what happens.

- Virus “enters” person.
- Virus settles mainly in nose and throat region.
- Virus enters epithelial cells (ECs): the cells lining the nose and throat.
- Virus kills ECs.
- ECs die.
- An accumulation of dead ECs leads to a response from your immune system to clear these dead and dying cells.
- White blood cells are generated from the lymph glands in the body. This is why your glands swell, to produce more white blood cells.
- This is what is known as an inflammatory response.
- Your natural response to everyday dead cells is low so the glands do not swell.
- You enter into a shock and stress situation of sweating, shivering, stiffness, and headache. This is because the whole body is becoming toxic due the accumulation and circulation of dead cells and the subsequent response by your body to destroy them.
- So influenza is the response of the body to the accumulation of dead cells caused by the virus.

The osteopath helps to keep the circulation and white cells moving at their best to deal with the rapid accumulation of dead ECs. As long as the ECs are cleared at a rate that your body is comfortable with you will not exhibit the signs and symptoms of influenza.

How is this achieved?

The most important aspect is knowledge of anatomy. If a practitioner does not know their anatomy they cannot even begin to understand what to do. The main organiser of your circulation function is a division of the nervous system known as the autonomic nervous system. A subdivision of this is the sympathetic nervous system. It was called sympathetic because it is in sympathy with you in your environment. This part of the nervous system is what makes you blush and causes you to swell in summer and contract in winter.

The osteopath knows how to feel the movement and obstructions to the function of the sympathetic nervous system. This is of paramount importance in the treatment of influenza or any infection.

Additionally, because the body is going into a state of shock and stress there is an adrenaline overproduction. It is this overproduction of adrenaline that makes your muscles stiff and quickly results in fatigue and exhaustion. Adrenaline moves the circulation into the muscles and away from the vital organs, liver, kidneys etc. In extreme cases the organs collapse due to poor circulation and an excess of toxins from dead cells and the person dies. Young adults produce more immune cells and adrenaline than infants and the elderly; this was a characteristic of the 1917-18 pandemic.

“...this epidemic was largely a young adult’s disease. The life insurance companies report their death claims from this cause average at thirty-three years of age as against fifty-five to sixty years of age of deaths from general causes.” H. L. Chiles, D.O., A New Survey of Public Health, (JAOA, Jan. 1919.)

“The physiological picture of influenza centres around one of the smallest but most important and interesting organs of the body – the adrenal gland. ...Its nerves come chiefly from the eleventh dorsal segment of the spine, just above the waist line. That is why the first symptom of this disease is usually backache in this region....In the female, it is the partner gland, the pituitary body, that is correspondingly more important. And you will notice there is a marked difference in the “flu” in males compared to females.” E. E. Tucker, D. O., New York, N. Y. Spanish Influenza – What and Why? (JAOA, Feb. 1919.)

The osteopath has to literally “decompress the system.” Treatment is aimed at reducing obstructions to circulation caused by tight muscles, ribs that are not moving, organs (spleen) that are not pumping, nerve bundles (sympathetic nervous system) that need stretching, and immune (lymphatic) channels that need unblocking. All this happens at once during the treatment and treatment should be two to three times in two to three days.

Is the virus removed? No. But the cause of the signs and symptoms is reduced and the reason for the virus to continue multiplying, resulting in immune suppression, is also drastically reduced. Osteopathic manipulation will get you back on your feet and there is no sign of that two week fatigue that most of us go through after the crisis is over. Think of the implications for the work place and the business world.

As Ward (1937) wrote, “By retarding the virulence of the invading organisms, appropriate osteopathic treatment reduces the incidence of complications and forces down the mortality rate in these cases.”

They used to call osteopaths “bloodless surgeons” and “fever fighters” in the nineteenth century and especially during the 1917-18 pandemic. Osteopaths have the history and the skill to make a major contribution to the reduction of deaths during an epidemic, pandemic or isolated cases of influenza.

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Thank you to:

Andrew Oliver and Michelle Moynes, British School of Osteopathy, 4th year.

Here's the scientific stuff

(In handout form)

Introduction

Influenza made the osteopaths of the beginning of the twentieth century famous. It has since been found that the foundations of osteopathy were rooted in the treatment of bacterial and viral infections. A. T. Still discovered a "system of immunity" and treated diseases "philosophically," no mention of manipulatively.

During the 1917-18 pandemic osteopaths were successful in saving the lives of hundreds of patients who caught the flu. Why has this not been noted in osteopathic history or education?

History

"Spanish flu" pandemic of 1917-18 killed 50 to 100 million people
Was labelled the H1N1 virus
Virus was a strain of avian influenza
Spread from person-to-person contact
Killed large numbers of health adults

Three other epidemics
H3N2 – 1889
Unknown deaths
H2N2 "Asian flu" – 1957
Killed more than 2 million
H3N2 "Hong Kong flu" – 1958
Killed more than 1 million
H1N1 "swine flu" was a pandemic scare
The pandemic didn't happen

What does "HN" notation mean?
Influenza A virus has one of 16 H subtypes
And one of 9 N subtypes
Only avian viruses have H5 and H7 subtypes

Neuroendocrine and immunology of inflammatory response to diseases

All inflammation and inflammatory responses are mediated by a bidirectional activity between the neuroendocrine and immune system.

"The physiological picture of influenza centres around one of the smallest but most important and interesting organs of the body - the adrenal gland.

"In the female, it is the partner gland, the pituitary body, that is correspondingly more important. And you will note that there is a marked difference in the "flu" in males as with females."
Tucker, E. E. (1919) Spanish Influenza.

Specific actions of the adrenal gland the fight-flight gland from the 1919 Journals of the American Osteopathic Association, mainly from Tucker (1919):

- Dilates bronchial tubes
- Admits more air/oxygen
- Dilates capillaries of the lung
- Admits more blood to lung
- Hence tendency for pneumonia
- Esp. Central or bronchial pneumonia

- Adrenaline contracts abdominal vessels
- Abdominal blood usually a reservoir of reserved blood
- Not in this case
- More blood in muscle/skeletal circulation
- Circulation shift enlarges vessels in the liver
- All this portal blood must pass through liver on way to lungs
- Hence gastro-intestinal form of disease
- Adrenaline stimulates thyroid gland
- Thyroxin acts as reducing substance that absorbs the oxygen into blood
- Frequently find goitres from gland strain
- Can find soreness at the root of the neck
- Enlargement of gland during influenza possible
- Adrenaline stimulates heart
- Heart, blood vessels and all sympathetic nervous system bathed in adrenaline
- In males larger hearts and blood vessels give cardiac symptoms of flu
- Dryness of skin, profuse perspiration
- Profound prostration
- Adrenaline stimulates brain
- Brain blood vessels dilated
- Mood changes - aggression
- Meningeal irritation
- Mucous membrane thickening
- Brain stimulated - muscles stimulated
- Brain-muscle-movement flight response
- Large muscles that move body as whole [crossing more than one joint]
- Myalgia
- Adrenaline releases carbohydrate from liver
- Carbohydrate stored for muscle use
- Another reason gastro-intestinal problems

More recent thinking, especially from Eskandari et al (2003):

The CNS relates to the immune system via

- hormonal pathways
- hypothalamic-pituitary-adrenal axis
- Hormones of neuroendocrine stress response
- Neural pathways - ANS
- Hypothalamic-pituitary-gonadal axis - sex hormone

Immune system signals CNS through:

- Immune mediators
- Cytokines – Water-soluble proteins Water-soluble proteins
- Produced by white blood cells
- Act as chemical messengers between cells
- These...
- 1. cross blood-brain barrier
- 2. Act indirectly through the vagus- PNS

Neuroendocrine relation-action with immunity essential for survival during distress/stress or infection

In healthy person:

- Negative feedback loop of
- Immune, CNS and hormonal

CNS regulation of immune system

1. Hormonal response
 - Hypothalamic-pituitary-adrenal axis (HPA)

- Hypothalamic-pituitary-gonadal axis (HPG)
 - Hypothalamic-pituitary-thyroid axis (HPT)
 - Hypothalamic-growth hormone axis
2. Autonomic nervous system
- Release of norepinephrine (noradrenaline)
 - Acetylcholine from symp. And parasym. nerves

Immune system regulates the CNS through cytokines

- Cytokines released in periphery change brain function
- Cytokines produced in CNS act like growth factors
- Cytokines produced at inflammatory sites signal brain to produce sickness signs and symptoms in depression and fever
- Cytokines produced locally have effects on hormone secretion and cell proliferation

This dynamic relationship/interaction between the neuroendocrine and immune system is vital for disease free function.

Changes in any direction can lead to susceptibility to infectious, inflammatory or autoimmune disease.

Regulation of the immune system by the CNS

Hormonal pathways

- HPA axis
- HPG axis
- HGH axis
- HPT axis

Hypothalamic-Pituitary-Adrenal Axis

- Stimulation of corticotropin release hormone (CRH)
- Secreted from paraventricular nucleus of hypothalamus
- Into - hypophyseal portal blood supply
- CRH stimulates expression and release of adrenocorticotropin (ACTH)
- From anterior pituitary gland

Hypothalamic-Pituitary-Adrenal Axis

- ACTH stimulates release of glucocorticoids (cortisosterone) from adrenal glands
- Glucocorticoids regulate immune-related cell expression and function
- these incl. expression of cytokines, adhesion molecules, adhesion molecules, inflammation mediators, immune cell migration, maturation, and differentiation

Hypothalamic-Pituitary-Gonadal Axis

- Particularly oestrogen modulate the immune system
- Physiological [conc.] of oestrogen enhance immune responses
- Physiological [conc.] of androgens - testosterone and dehydroepiandrosterone (DHEA) are immunosuppressive

Hypothalamic-Pituitary-Gonadal Axis

- Immune stress, in inflammation, inhibits HPG axis
- Gonadal function reduced in trauma conditions

Hypothalamic-Growth-Hormone Axis

- GH mediates immune system
- GH stimulates proliferation of lymphoid cells
- Suggesting GH is a cytokine

Hypothalamic-Pituitary-Thyroid Axis

- Bidirectional communication between the HPT axis and immune system
- HPT regulates immune system

Neural Pathways

Sympathetic nervous system (SNS)

- SNS regulates immune system at regional, local and systemic levels
- All levels!
- Immune organs incl. thymus, spleen, and lymph nodes
- All innervated by SNS

Opioids

- Opioids suppress immune responses
- Incl. Antimicrobial resistance, antibody production, delayed-type hypersensitivity

Parasympathetic Nervous System (PNS)

- Activation of PNS activates cholinergic nerve fibres of efferent vagus nerve = release of acetylcholine at the synapses
- With inflammation-activated sensory nerve fibres of vagus nerve form the 'inflammatory reflex'
- Rapid mechanism of inflammatory signals reaching the brain
- Brain responds with rapid anti-inflammatory action through cholinergic nerve fibres

Peripheral nervous system

- Regulates immunity locally at sites of inflammation
- Via neuropeptides
- incl. Substance P, peripherally released CRH, vasoactive intestinal polypeptide
- These molecules are released from nerve endings or synapses

Regulation of the CNS by the immune system

Cytokines

- They connect and modulate the immune and neuroendocrine systems
- Systemic cytokines affect brain through:
 1. Active transport across blood-brain barrier
 2. Leaky areas in blood-brain barrier
 3. Through activation of neural pathways such as vagus nerve
- Cytokines signal brain to:
 1. Activate HPA axis
 2. Facilitate pain
 3. Mood and behavioural responses - "sickness-behaviour"
- Cytokines include IL-1, IL-6 and TNF- α

Vagus Nerve

- Signals CNS to immune system
- Innervates most visceral structures – lungs, GIT
- Immune system stimulates vagal sensory receptors

Osteopathic Management

“However, the lessons learned within the osteopathic medical profession as a result of the 1917-1918 pandemic could prove useful once again if (or when) a new influenza pandemic occurs. As AOA editor in chief, Gilbert E. D'Alonzo, Jr, DO, noted in his 2004 editorial, "Influenza epidemic or pandemic? Time to roll up sleeves, vaccinate patients, and hone osteopathic manipulative skills," influenza patients treated osteopathically during 1917-1918 had a 0.25% mortality rate, as compared to the national average of 6% (and 10% for pneumonia patients, compared with 33% to 75% for the national average)." Michael Patterson, PhD, 2005.

Statistics from the 1917-18 Pandemic

| | | | |
|------------------------|-------|--------|------------|
| Mortality in Influenza | | | |
| Under | Cases | Deaths | Percentage |
| Medical care | 1000 | 50 | 5 |
| Osteopathic Care | 1000 | 2.25 | ¼ of 1 |
| Mortality in Pneumonia | | | |
| Under | Cases | Deaths | Percentage |
| Medical Care | 1000 | 350 | 35 |
| Osteopathic Care | 1000 | 100 | 10 |

Source: The Lengthening Shadow of Dr. Andrew Taylor Still by Hildreth

“Perhaps nowhere else in the body does the logical patency of the osteopathic concept stand out more vividly than in the combined activeness, structural and functional dependency, of a rib, the pleura and sympathetic ganglion. No stretch of the imagination is demanded .”
 Carl P. McConnell, DO, *Journal of the American Osteopathic Association*, May 1935.

What happened in 1917-18 was essentially a “cytokine storm.” An over reaction of the immune response regulated by the sympathetic nervous system is central to the immune response to epithelial cell necrosis. Unfortunately, the sympathetic nervous system is in a state of sympathicotonia or heightened facilitation. It is this heightened state that over excites the cytokine system. Treatment by the osteopath has to control, not stop, this response. It is in this state that the sympathetic (vasomotor) system over dilates leading to a bloody pneumonia.

Overall management should include the following:

- Quarantine
- Nutrition
- Hygiene
- Reduce cross-infection
- Osteopathic manipulative medicine
- Prophylactic family treatment

Influenza symptoms arise from the patient’s response to epithelial cell necrosis NOT viral presence.

We aim to reduce the inflammatory, fight-flight, sympathicotonia response NOT stop it.

The manipulative approach isn’t rocket science: calm the over-reaction of the patient to the cell necrosis. It doesn’t remove the virus, it calms the patient. This means they can walk around, watch TV and have chicken soup.

- 1) Get the ribs moving
- 2) Affect the sympathetic ganglia which are bound to the rib heads and lymph nodes
- 3) This improves circulation
- 4) Release the occipito-atlantal region this stops the headache
- 5) Calm the adrenal region
- 6) Think about the thyroid
- 7) Remember these are NOT manipulative techniques, just the ideas
- 8) The techniques I will show in my seminars
- 9) The most important part: If you do not know the original osteopathic philosophy treatment will not work. Ask those that know the philosophy and then the treatment will work. No philosophy, no osteopathy!**

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