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ETHYLENE KETO AND QUINONE GROUPS IN NATURAL IMMUNITY ALLERGY NEOPLASIA AND INFECTION

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ALLERGY AND IMMUNITY mechanisms ultimately resolve themselves into three physiochemical processes, catalytic activities of two types, one temporary in nature and the two others, self perpetuating chain reactions which demonstrate after effects and depend upon carriers.

In the *Medical Record* of October 1920, the writer demonstrated the presence of an immunity mechanism in normal tissue extracts that permanently corrected the most difficult and deepest of all allergies— neoplasia. The recoveries reported were accomplished on far advanced cases. One of them that was bedfast with massive carcinoma of the stomach causing complete pylorus obstruction was seen recently and found in perfect health twenty years after treatment.

The cephalin lipoid fractions of heart muscle and brain were used because these organs survive starvation longest, and cephalin has high adsorption storage capacity. Isolated there from two substances, glyoxylic and formic acids, hold the important position of

pointing to the molecular structures evolved in the catalytic processes mentioned above and suggest the nature of the normal process of oxidation of glucose and the structure of its carrier which, in our opinion, is the basic factor in natural immunity, not only against ordinary allergy but against infection and neoplasia as well.

The chemical substances evolved are highly active simple structures that cover the photochemic activities of divalency between carbon atoms, between carbon and nitrogen, and between carbon and oxygen, and therefore fluorescence, chemicluminescence (A), the carrier catalysis we attribute to the keto and quinone groups, and the catalytic carrying of peroxide oxidation by free valences between carbon atoms and other atoms (B). The properties thus summarized are exhibited by the unsaturated diketone (O= C = C= O) and to some extent by (O = C = C = C = O) which are respectively the internal anhydrides of glyoxylic and malonic acids. The former bears important relation to alkaline solutions of formic acid, glyoxylic acid, and formaldehyde and their peroxides in which it holds existence as a transient intermediary. Thus, the hydrated form, glyoxylic acid, which is present in tissues in traces, has basic immunologic significance.

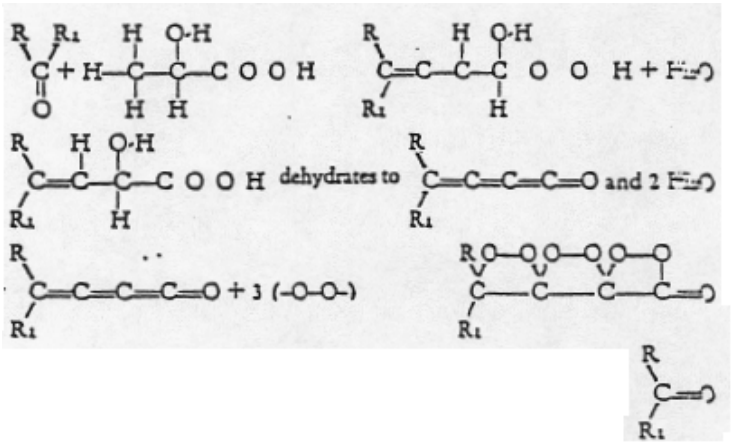
If we view allergy as a functional hyperactivity constantly forced beyond physiologic control rather than simply as a hypersensitivity, the mechanisms of both may be described as follows: “The structures concerned in the various cell activities, such as contraction, secretion, nerve impulse generation, conduction, and cell divisions, are colloids that are able to adsorb and hold substances possessing the formerly mentioned photochemic properties, A and B. Through fluorescence (A) these may direct the energy of exothermic chemical reactions of glycolysis going on in the cell into the adsorbing mechanism and thereby force its chemical activity and function beyond physiologic control.”

Fluorescent agents are able to absorb radiant energy or the energy of exothermic chemical reaction in progress in the containing medium.

When the fluorescent substance is adsorbed into a colloid capable of accepting this acquired energy it is passed on to the colloid to activate its chemical reactions, otherwise the energy is emitted as a degraded radiation. The fluorescent material thus accomplishes a photochemic sensitization of the chemical activity of the colloidal acceptor mechanism and keeps it functioning. In so doing the energy of glycolysis that should normally activate the formation of the carrier of the oxidation of glucose and fats is diverted into the functional mechanism allergically, and the normal oxidation chain is destroyed. Behaving thus, the allergenic agent is also a negative catalyst to the normal oxidation

process, breaking the chain at lactic acid production. When the cell concerned is anaplastic from any cause, only the cell reproduction mechanism remains for allergic response, but where a contraction and secretory system are present the whole tissue affected becomes hyperactive in contraction and secretion as in asthma, angioneurotic oedema, hyperthyroidism, etc… or if the nerve cell elements of an associated system of neurotics are evolved, neuritis, epilepsy, or a delusional insanity is the allergic result. This effect depends upon and is coextensive with the presence of the specific fluorescent agent and the evolution of exothermic energy in the cells concerned.

Moreover, a catalysis with after-effect is possible where the fluorescent agent possesses a quinone group which permits it to serve as the carrier of a chain reaction, and lactic acid or other combustible substance may be burned according to the following mechanism within an adsorbing colloidal functional structure even in the mitogenetic mechanism of an anaplastic cell where no exothermic energy is evolved and thus the energizing of mitosis may be accomplished. Since in total anaplasia no exothermic energy is available, some such mechanism provides the only possible activating process whereby lactic acid or other diffusible substances and oxygen can serve as the reactants for the production of energy for mitogenesis of continued cell division in neoplasia. It maybe represented thus:



which forms CO: and liberates energy and regenerates the carrier which unites with another molecule of lactic acid, repeating the process.

So far as I can determine the allergenic sex materials of pollens and seeds all possess fluorescence either in the visible or ultraviolet depending upon divalency between carbon atoms or between carbon and other atoms. The carcinogenic substances of known

structure are likewise fluorescent and possess divalency between carbon and other atoms. Moreover, actively carcinogenic materials known are so constructed that a mesoanthracene group is protected by substitution so as to permit only one mesocarbon atom to oxidize to a quinone group. The molecule is thus protected from splitting at the mesopositions. Since carcinogenesis is delayed after use of the un-oxidized structures some change essential to allergenic activity must have time to take place in the substance and the easiest possible change in the body is the oxidation to quinone structure.

Where a quinone is present, of an oxydisable type, as in estron only mild carcinogenic activity is possible so long as the dosage is large and continuous. Comparing ortho and para-amidoazotoluol, carcinogenic properties are observed in the ortho compound only, which can form a quinone, while the para compound cannot form a quinone readily and is not carcinogenic. Likewise cholic acid can form a quinone by closing its side chain to form a ring, thus presenting sex hormone and carcinogenic possibilities. The quinone group advantageously placed in a multi cyclic molecule thus appears to be the one common property carrying carcinogenic powers exhibited or producible in each.

On the physiochemical basis thus built up, we conclude that the correction or recovery mechanism must accomplish two things; firstly, it must restore the normal oxidation chain and its carrier; secondly, is must destroy the unsaturated groups responsible for the allergenic photochemic catalyses. This we accomplish by saturating them with oxygen, in other words, burning them. And although the specific photochemic properties depend upon the unsaturated groups being placed in definite arrangement for most effective absorption and emission, spectrographic specificity with reference to the functional colloidal acceptor mechanism, the simple saturation of their free valencies is all that is required to destroy all of their toxic properties.

Neutral salts as KI, KCNS, KCI, KBr may temporarily extinguish allergenic fluorescent activity in an order corresponding to the ease of displacement of the electrons of the peripheral shell of the anion and so even sodium fluoride has some inhibiting affect on carcinogenesis. But a permanent destruction of the allergenic agent is only to be had through the carrier of an oxidation reaction that can saturate the free valences of the offender with oxygen and split the offending molecule at its quinone groups. The most efficient structure for this purpose is the very Glyoxylide group for when properly prepared it not only absorbs the energy of glycolysis, successfully competing with the = C = C = and = C =O groups of the allergic substance, but serves as the carrier of the natural oxidation chain and restores the normal process of glucose and fat oxidation. It also, by carrying peroxide oxygen, catalyzes the saturation of the free valences of the

allergenic agent in a manner similar to the auto-oxidation of benzaldehyde to benzoic acid via perbenzoic acid in which reaction the activity of peroxidation is enormously greater than the production of benzoic acid by the reaction between benzaldehyde and the peracid. It is entirely possible that the structure O= C = C= is really the career of the normal oxidation chain and the basis of natural immunity, for when such oxidation is exhausted and infection rampant the restoration of as small quantity of the agent to the circulation restore immunity against allergy and infection in general, and catalyses the burning of fatigue produces. *It also reestablishes normal function, and in some instances, the development of organs to normal, where these have been suspended.* The keto groups such as formaldehyde, formic acid, glyoxylic acid, urea, and perhaps even also uric acid and the peroxides of these various substances naturally occurring in the body have a function in natural immunity. Moreover, compounds containing carbon atoms, joined together by double bonds, have immunologic catalytic powers. Such substances are brought into existence in the normal oxidation of glucose. The most active of which is represented by the internal anhydride of glyoxylic acid O=C=C=O.

The removal of pathogenic catalytic agents by boosting the normal oxidation catalysis to a high pitch has proven a means of supplying natural immunity and natural health and function of the highest degree. With it comes the correction of progressive pathologic changes we have heretofore not been able to deal with. I am presenting a few illustrative cases.

Cancer of Uterus. Mrs. T. -. Age 31. Squamous cell carcinoma of cervix uteri. Biopsy confirmed by three different pathologists report reads: " Sections show an atypical proliferation of squamous epithelial cells which have markedly infiltrated the underlying tissues. Diagnosis—Squamous cell carcinoma (epithelioma). Surgically inoperable, invading body of uterus and adnexia. Severe hemorrhages and pain, cachexia, no children, one miscarriage. Treated with two doses of Glyoxylide solution, one cc. each, two weeks apart, August 1923. Recovery followed with complete restoration of uterus in one year. Four healthy children born since. Perfect health remains.

Cancer of Testis. Mr. T. —. Age 38. Medullary carcinoma of testis, recurrent after two operative attempts at removal. Biopsies done at these operations confirmed diagnosis each time. The last biopsy report reads: "Carcinoma probably secondary to previous carcinoma of testis as the cells were histologically similar. Recurrences evolved scrotum, abdominal wall and structures of lower abdomen. Patient weak, cachetic. Treated once, June 10. 1925. Recovery complete in six months and has remained well ever since. Is very robust and strong.

Cancer of Stomach. Mrs. P.—. Age 61. Treated twice, two-week interval, November 1919. Massive carcinoma of stomach widely infiltrated and metastasized causing complete obstruction of pyloris. Diagnosis confirmed at laparotomy. No biopsy made, or needed. Patient emaciated, bedfast. Two weeks after treatment growth considerably absorbed and pyloris opened up permitting passage of food. Thereafter, recovery was rapid. Patient remains well to date. Excellent health. Cephaline fraction of heart muscle extract was used as source of Glyoxylide in this case. Reported in *Medical Record*, October 1920.

Cancer of Stomach. Mr. R. **—,** Age 69. Treated once, August 1926. Medullary carcinoma of stomach. After gaseroenterostomy, to relieve pyloric obstruction, the neoplasms spread extensively, completely closing the new opening. Diagnosis confirmed by biopsy. Biopsy report: "Microscopic Examination: Small alveoli combined with a diffuse growth of atypical proliferating epithelium form the structural picture of this neoplasm.

The epithelial cells are generally polyhedral or round in shape, with large hyperchromatic nuclei. One portion is necrotic a superficial ulceration. This may be classified as the diffuse type of gastric carcinoma. I am unable to determine this point exactly as it is necessary to know something of the gross appearance. If there were extensive involvement of the wall, this would be the correct interpretation. If the growth were sharply defined, rounded and ulcerating, it would be placed with the circumscribed types of carcinoma simplex----. This type is always infiltrating and early invades the lymph nodes with widespread metastases "Diagnosis: Carcinoma of the stomach (Type dependent upon the gross pathologic anatomy)" Bulging mass fist size when treated with one cc. of Glyoxylide solution, August 1926. Natural opening at pylorus now functioning, but gaseroenterostomy healed shut. Remains Well and vigorous.

Asthma. Mrs. J. L—, Age 50. Father had asthma. Patient had asthma for ten years, in which time he could not draw a full breath. Much secretion and spasms. Constant dyspnoea, especially on exertion. Could walk stairs with difficulty only. One cc. Malonide solution given September 8, 1936, was followed by total freedom from symptoms in about three weeks. Has gained thirty pounds in weight since and is perfectly normal. Climbs hills without discomfort.

Acute Anterior Poliomyelitis. A child of two years presented characteristic symptoms prodromally and paralysis of both legs, feet, and thighs for forty-eight hours before treatment of one dose of Glyoxylide. Recovery was complete with normal return of

muscle control within twenty-four hours.

Boy. — Age 17. All muscles of torso, legs, thighs, arms, neck, the internal rectus of right eye, the swallowing muscles, the diaphragm, and intestines paralyzed. When treated with Glyoxylide, paralysis of whole right leg was already established for four days, and paralysis of the other muscle groups took place with in that time, until respiratory paralysis was just about complete, and cyanosis deep, patient unconscious. Recovery started to show within a few minutes after the first injection, noticed in the straightening of the right eye, slightly better breathing, diminution of the bloated abdomen, and the returns of swallowing within a day. He required catheterization for four weeks. Satisfactory restoration of muscle development and control required about two years with reconstruction of right rectus, abdominalis muscle and right rectus femoris still going on.

Syphilis, Mrs. K—, Age 32. Treated, November 1923. Syphilis of throat. Resistant to vigorous usual antiluetic treatment. Throat badly swollen and ulcerated. Voice lost. Skin lesions generalized. Blood Wassermann persistently positive. Condition growing worse over a year. One dose Glyoxylide was followed by complete recovery in three months. Blood Wassermann negative thereafter. Remains well.

Tuberculosis. Miss A. —**,** Age 16. Advanced tuberculosis of both lungs. Spontaneous pneumothorax, left chest. Heart shifted to the right side. Massive tuberculosis left kidney. Evident tubercular meningitis Projectile vomiting every few minutes for three weeks. Cyanotic. Fever 105. Pulse very weak and rapid. Bedfast. Treated, one dose of Glyoxylide; July, 1922. Recovery took two years. Whole left lung regenerated. No more pathology traceable. Heart restored to left side. Married has healthy twins who are very resistant to colds. Health is still perfect

Arthritis. Mrs. T. **--,** Age 74. Rheumatoid arthritis for nearly thirty years, progressive until all joints including the jaw articulations had become ankylosed and terrifically painful on touch or tension. Most joints were distorted, fusiform in shape, enclosing hyperthropic inflammatory deposits and covered with shiny skin. One dose of Glyoxylide was given in December 1927, pain was soon better and in three months she was able to walk a few steps. In one year recovery had become about ninety percent of normal and has so remained.

Arthritis. Mrs. A. —, Age 60. Poker spine with rheumatoid arthritis. Painful hyperthropic and atrophic ankylosis of practically all joints including jaw articulations progressing for the last two years with occasional exacerbations. Tonsils had been badly infected for a long time; pyorrhea, sinusitis, and myocarditis present. Treatment of one

dose of Glyoxylide given in January 1937; started a rapid subsidence of pain, with absorption of hyperthropic deposits and restoration of ability to walk and to open the mouth. During the twelfth and fifteenth week reactions, exquisite tenderness accompanied a healing restoration of joint tissues after which perhaps a ninety-five percent return to normal was established with improvement still going on.

Coronary Occlusion (Thrombosis). Dr. A. —**,** Age 64. Prostatic hypertrophy and coronary occlusions. No other recent illness. Urinary difficulty progressive for five years. Night frequency, five or six times. Finally permanent catheter treatment employed with aggravation of disease. First attacks of coronary pain while walking in December 1936 passed in a few minutes on resting. Severe attack coronary pain on December 4, 1936, while resting. Repeated heavy doses of morphine hypodermically influenced pain only when sufficient to profoundly stupefy him. Severe pain still remained while conscious until December 8, 1936, when one dose of Glyoxylide given subcutaneously, was followed by very considerable relief from pain within an hour. Eighty-four hours later another dose of Glyoxylide was given, followed by complete relief from pain, which has never returned. Patient up and about, dressed. Actively going about in comfort. Good heart function. Frequency reduced to once a night within four weeks. General health much improved.

Angioneurotic Cedema. Mr. J. H. —**,** Age 23, Angioneurotic oedema of lungs, larynx, whole face, and even the cornea. Stridulous breathing. Dyspnoea came on suddenly after quick change in temperature from hot to cold. Vision obscured so that automobile headlights looked like pinpoints. Tremendous swelling and apparently complete obstruction to breathing. His condition was one of immediately impending death when Glyoxylide was given intramuscularly. Within a very few minutes relief was 80 percent and recovery was complete within about one hour.

DISCUSSION:

DAVID ARNOTT, M D., London, Ont**.**

Mr. Chairman and Members of this Association: It gives me great pleasure to come here and see Dr. Davis very busy with the business of this association. The keynote that your President struck was tolerance. The work of you men has needed tolerance. The history the Chairman has given has been one of progress. This man that you remember did that, the other men you well recall did that, and so we have here a meeting that is keyed to the idea of tolerance of new ideas.

Comparatively speaking, this is a new idea that Dr. Koch has presented to you. It was new to me. One day a patient of mine, who was foolish enough to come from Detroit to London to doctor with me and get some instruction, said, "There is as man over in Detroit who is curing cancer." I just couldn't believe that. He said, "I have a patient who was operated and re-operated, and had a recurrence. She was as yellow as a duck's foot, and I had to carry her into that man's office. He gave her one Treatment in the arm, and she is well."

I had a patient come in the next hour or two, and she had cancer of the breast. We all loved her. She was a wonderful woman I had to go to Detroit and talk with Dr. Koch the next day. I went back once a month and spent three days for eight months. I took my own notes, watched his written histories as they grew, and I knew they were correctly kept and truthfully described.

My first experience with it personally was with a personal friend who had cancer of the sigmoid. He was a big stout fellow, the kind that beats the drum and carries it way out here. He had this terrible cancer, and could wrap his clothes around him. I laid him down on the couch and found a tumor over the sigmoid as big as a pint milk bottle. X-Ray examination showed the sigmoid was involved for six inches. I gave the man one treatment on the seventh of May 1927. He was sixty-two years of age, and a farmer, and he has been plowing and carrying on the work on his farm ever since. He was in the office last Saturday, is still going strong and feeling splendid.

I was fascinated with Dr. Koch's work on malignancy. That was something I could see. It does work often enough to make it unmistakable.

I had rather the advantage of a good many of you men in the beginning, because once I saw the spontaneous regression of sarcoma of the superior maxilla. It grew half as large as my fist, stopped growing, and just as gently disappeared entirely. That is something you read about in the literature. I never expected to see that in my experience, but a year and a half afterward, after recovering from an attack of pneumonia, it recurred exactly in the same spot and destroyed him.

So I went to Dr. Koch and said, "Can you produce that result often enough to make me know that it is not an accident?"

He said, 'Yes." He has been just wonderful with me. I have asked all the tough questions I wished, and he has been very patient and tolerant with me.

Chance played a large part in bringing me here. It chanced I saw the spontaneous recovery of cancer. It chanced that a man came to my office, which gave me the hint to go there and search further. It chanced that a man was filled with the highest ideals of chemistry. That could only have occurred to a man who had nothing in his mind but ideals, a man way beyond the rest of us. We want the practical side, but he thought the ideal side and has made it practical. It was some time before I could tune my mind to the progress he was making.

He said, "You know, this is good for tuberculosis I couldn't take that in. I had been taking in cancer, and that was quite a large load. Then I saw cases getting better, and when I applied it in my own experience, it worked splendidly. Then it is effective in other infections, as Dr. Koch has explained to you, which spring from an allergic state. In other words we think back to Pasteur, who exposed the basic principle that a great many diseases come from bacterial infections. Then we began to think of the idea of specific terms, that we had to have an innumerable number of remedial agents. But Pasteur's work resulted in prevention; very little in the matter of cure; prevention by isolation, prevention by vaccination, prevention by antiseptics.

Here we have another step ahead in the knowledge of what goes on in the cell itself. Food is taken into the body and carries on in the form of life, thought, sight, feeling which is a wonderful thing to contemplate, based on the reaction Dr. Koch has spoken of, the burning up of food. I talk about it in my own way to my medical friends and patients. I say, "If the food doesn't burn with a clear flame, it smokes, irritates the body, and throws the normal mechanism out of perfection." So if there is a fundamental chemical reaction going on in the body producing disturbing results, if we are logical we will expect not one evidence of morbidity, but many. If we are logical we will expect, if we restore that to its normal perfection, not one evidence of usefulness, but many. I can assure you that is true!

PRESIDENT VAN HALTERN: Doctor, we thank you.
Are there any questions to be asked on this subject? Dr. Arnott will respond.

If there are no questions, I would like to present Dr. Jones, Dr. Jones knows Dr. Koch well and has used the medicine, and I think he can say something that will be of benefit to us along that line.

Dr. J. M. Jones, Dallas, Texas

I gave my first dose of antitoxin, as it was called at that time, the second day of

December 1926, to a woman forty-one years of age who had uterine hemorrhage. I took her to a hospital and did a curettement. There was a rapidly developing carcinoma of the fourth degree. I gave her a dose of antitoxin. There were three tumors within her abdomen perhaps totaling a weight of eight or nine pounds. The uterus was seven inches deep and presented a roller coaster proposition for the curette as it passed in and out.

I would like to enumerate case after case going up to about 100, where I have been gratified with about a forty percent cure. Most of the cases I get, as Dr. Van Haltern will tell you, have passed through the hospitals, with radium and X-Ray after surgery.