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**Ninety Percent Reduction in Cancer Mortality after Chelation Therapy With EDTA**  
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**ABSTRACT:** Mortality from cancer was reduced 90% during an 18-year follow-up of 59 patients treated with Calcium-EDTA. Only one of 59 treated patients (1.7%) died of cancer while 30 of 172 non treated control subjects (17.6%) died of cancer (P=0.002). Death from atherosclerosis was also reduced. Treated patients had no evidence of cancer at the time of entry into this study. Observations relate only to long-term prevention of death from malignant disease, if chelation therapy is begun before clinical evidence of cancer occurs. Control and treated patients lived in the same neighborhood, adjacent to a heavily traveled highway in a small Swiss city. Both groups were exposed to the same amount of lead from automobile exhaust, industrial pollution and other carcinogens. Exposure to carcinogens was no greater for the studied population than exists in most other metropolitan areas throughout the world. Statistical analysis showed EDTA chelation therapy to be the only significant difference between controls and treated patients to explain the marked reduction in cancer mortality.

EDTA is well recognized as a therapy for lead toxicity. EDTA also removes other toxic heavy metals and nutritional elements such as iron which promote cancer by catalyzing free radical pathology.

Lead from automobile exhausts, petrochemicals from wear of automobile tires, cadmium, and other carcinogens are present in higher concentrations adjacent to heavily traveled automobile highways. These substances cause cancer and potentiate other carcinogens.

It was reported in an earlier paper that cancer mortality among 231 adults living along a heavily traveled highway was higher than among persons living in a traffic-free section of the same city<sup>1</sup> Nervous disorders, headaches, fatigue, gastrointestinal disorders, depression, and substance abuse was also observed with higher frequency.<sup>2</sup> It was postulated that lead exposure from automobile exhausts might be one cause of this difference.

Beginning in 1961, a group of 59 patients with such symptoms was treated with parenteral doses of Calcium EDTA. Symptoms improved and urinary delta-amino levulinic acid diminished.<sup>3</sup>

Subsequent to the EDTA chelation therapy, a decrease in cancer mortality was observed. When compared with a control group of untreated patients who did not receive EDTA, many fewer cancer deaths were recorded,<sup>4,5</sup>. The control group was similar to the treated group in all ways except to the EDTA chelation therapy.

The purpose of this present study is to determine more precisely and to statistically analyze the long-term change in cancer mortality after treatment with EDTA.

## Statistical Data

A group of 231 adults was studied beginning in late 1958. All resided along the main highway in a small Swiss city with a total population of approximately 3,000. Of these 231 people (105 men and 126 women), 31 persons, (17 men and 14 women) died of malignant tumors during the 18-year observation period (1959-1976). Causes of death included 4 cases of bronchogenic carcinoma, 5 of colon carcinoma, 5 of gastric carcinoma, 2 of breast cancer, 3 of ovarian carcinoma, 1 of pancreatic carcinoma, 2 of pleural endothelioma, and 9 cases of other types of cancer. In all but one case, histopathological diagnosis was confirmed by a hospital pathologist. Twenty-eight of the deceased individuals had lived for 10 or more years directly adjacent to the highway and most were normally present in their homes for 24 hours of every day.

Fifty-nine adult study patient received ten or more injections of 1.9 gm calcium EDTA plus vitamins C and B1 From 1959 through 1976, only one (1.7%) of patients treated with EDTA died from cancer. In comparison, of 172 untreated control subjects who had not received calcium EDTA, 30 (17.4%) died from cancer. This represents a ten-fold greater incidence of cancer mortality in untreated persons ( $P=0.002$ ). The two groups were similar in all other respects.

The treated group consisted of 35 women and 24 men. It was initially thought that this higher percentage of women may have included fewer smokers which might partially explain the reduced mortality. Analysis showed that none of the 35 treated women died of cancer. Of 91 untreated women, 14 died of cancer, an incidence of 15%, and all female cancer deaths occurred in nonsmokers.

The treated group did not include a greater proportion of persons who were less exposed to carcinogens in their occupations or who spent more time away from the heavily congested highway during the day. Analysis of occupational data and location during the day showed no differences between the two groups. Housewives, the majority of whom remained at home each day, were represented equally in both groups.

No significant differences existed in age distribution between treated patients and controls. There were no significant socio-economic differences between the treated and the untreated persons. Cancer mortality was independent of monetary income.

## Laboratory Analysis

Increased urinary lead excretion after injection of EDTA is a recognized test for lead accumulation in the body.<sup>6</sup> Urinary lead excretion was measured before and after EDTA infusion in 5 patients with atomic absorption spectroscopy,<sup>7</sup> using the method of Roosels.<sup>8</sup> In every case, a substantial increase in lead excretion was measured. Simultaneously, urinary delta-amino levulinic acid (DALA) decreased. DALA was measured in the Central Laboratories of the University Hospital of Zurich, according to the methods of Doss and Schmidt.<sup>9</sup>

It is emphasized that the population studied and reported on in this paper was not exposed to any more lead or other environmental carcinogens than residents of most metropolitan areas throughout the world.

Traffic flow past residences of the study subjects was 4000 vehicles per day in 1956, increasing to 8000 vehicles per day in 1968. Of those, 7000 were passenger cars and 400 were diesel trucks.

Environmental measurements of pollutants and carcinogens were made in the immediate and surrounding area of this study. Tests were done at the Woods Hole Laboratories, Massachusetts, USA, using ultraviolet spectrophotography, mass-spectrography and chromatography.<sup>10</sup> Soil tests adjacent to the highway where the study population lived showed the presence of polycyclic aromatic hydrocarbons, which are known carcinogens. In more remote sections of the same city, levels of these pollutants were found to be approximately three times lower, inversely correlated with the distance from automobile traffic. Further analyses showed the majority of measured carcinogens to be from automobile pollution. Pollution immediately adjacent to the highway where the study population resided was at or only slightly above permissible levels allowed under public health and environmental regulations in the USA.

## **Discussion**

Following preliminary communication of these data, the committee responsible for the surveillance of air quality in Switzerland scrutinized the results using a different statistical method.<sup>11</sup> They found a higher incidence of death from cancer in the untreated group than in the population of Switzerland as a whole.

The fact that an identical group treated with EDTA experienced a 90% reduction in cancer mortality, as well as a reduction in death from all causes was also confirmed. The fact that the general mortality as well as cancer mortality was lower in treated than untreated individuals was also confirmed by Knutti and Schlatter.<sup>11</sup> Their proposed explanation was that treated patients might possibly have been more health conscious or under better medical care, but this does not seem an adequate explanation of the recorded facts. Residents of less polluted areas experience a lower cancer mortality, despite the same level of medical care.

Evidence presented in this paper indicated that (1) EDTA removes cancer causing or promoting substances, from the body, and (2) those substances are correlated with environmental pollution from vehicular traffic.

The overall reduction of death from all causes and increased longevity in the EDTA treated group shows that chelation therapy also reduces other common causes of mortality such as atherosclerosis and cardiovascular disease. Except for cancer mortality, exact data are not available for statistical analysis.

As early as 1961, it was reported from animal experiments that intravenous injections of EDTA could slow the growth of experimental carcinoma<sup>12</sup>. A cancer-inhibiting effect has also been demonstrated for other chelating agents, including BAL, cystine, penicillamine

and citric acid<sup>13-16</sup>. Many tumor inhibiting medications, including 5-flouracil, possess metal-binding properties.<sup>17</sup>

Lead potentiates the carcinogenicity of aromatic hydrocarbons such as benzopyrene by five fold.<sup>18</sup> areas adjacent to heavily traveled highways are polluted with many other carcinogens, including polycyclic aromatic hydrocarbons, nitrosamines, epoxides, cadmium and asbestos, in addition to inorganic and tetraethyl lead.

Since the data from this study were last reported,<sup>5</sup> new research has linked cancer to free radical pathology.<sup>19-21</sup> EDTA removes transition elements, such as iron, which accelerate free radical pathology, including cancer. Iron is an essential nutritional element but it is also know to accumulate with age. Catalysis of lipid peroxidation by iron potentiates the cancer promoting substances. EDTA increases the urinary excretion of unbound and freely catalytic iron 10 times more then it does lead. There are many reasons why EDTA chelation therapy could act to prevent cancer.

A recent publication by McDonough, et al,<sup>22</sup> confirms improvement in a wide variety of symptoms, as first reported in this study population.<sup>2</sup> Neurasthenic and nonspecific multi-organ symptoms improve significantly following EDTA chelation therapy, resulting in a marked improvement in the overall quality of life.

Body stores of iron correlate with the risk of cancer.<sup>23-25</sup> and atherosclerosis.<sup>26</sup> EDTA removes unbound and potentially toxic iron from the body much more effectively than lead,<sup>21</sup> which may account for the findings in this study.

Large scale, double blind, controlled studies should be undertaken to fully document the many benefits observed in clinical practice following treatment with EDTA. EDTA is an inexpensive and relatively safe substance to administer but he patent has expired and pharmaceutical companies have no incentive to fund such research.

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