Symptoms Before and After Proper Amalgam Removal in Relation to Serum-Globulin Reaction to Metals

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Abstract

The results of this study indicate that proper amalgam removal and, in some cases, removal of all the other metals and replacement with biocompatible composites can eliminate or reduce 80% of the classic symptoms of chronic mercury poisoning. These results also show that the strength of an individual's serum-globulin reaction, to many metals used in dentistry, especially the five metals present in amalgam, has important implications for recovery.

Introduction

It has been documented that mercury escapes from amalgam fillings and adversely affects health.[1-3] Many clinical experiments have also demonstrated that symptoms associated with mercury poisoning greatly decrease when amalgam fillings are removed and replaced by less toxic materials–for example, composite materials.[4–8]

This study differs from similar clinical studies in demonstrating the correlation between the patient's serum-globulin reaction to dental metals and the patient's response after amalgam fillings (and other metals) are replaced with composite materials found to be biocompatible with the individual patient.

One hundred eighteen patients participated in this study, consisting of 97 women and 21 men ranging in age from 18 to 73 years. The average age of participants was 45 years. Before treatment began in 1990-91, a blood serum test was performed on each patient in order to determine which dental materials caused minimal reactions in the individual. This serum analysis incorporated globulin reactions for metals.

Scientific research by Pleva, Clarkson, Masi and many others has proven that metals are essential for normal human functioning. However, certain metals are poisonous, even in extremely small quantities, and serve no biological function. Heavy metals, including mercury and cadmium, are in this category.[9–11] Other metals, for example, copper, zinc and selenium, are necessary in minute quantities, but are toxic in large quantities. Products of corrosion and metals which react chemically with proteins or methyl groups are extremely poisonous.[12]

Removing all dental metals, thereby removing a constant and probably excessive source of exposure to metals, could obviously have a positive impact on the patient. Individuals react differently to many metals, as demonstrated by the blood serum test. This suggests that individuals will show varying degrees of improvement when exposure to these metals ceases.

Method and Result

The 118 patients involved in this study completed a survey discussing 38 classic symptoms of chronic mercury poisoning. Before removal of amalgam (and in some cases, additional metals) each patient underwent a blood serum test of their globulin reaction to 34 different metals and assorted dental materials. The patients then had all amalgam fillings removed. Some patients also elected to have other metal and porcelain dental work removed.

Symptoms Before Amalgam Removal

The survey covered 38 symptoms and complaints common to chronic mercury

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poisoning, as found in related literature. Participating in the survey were 118 patients who have been with my clinic since 1984.

The following symptoms and complaints were common–before amalgam removal– to more than 50% of the participants.

Fatigue	83%
Poor concentration	76%
Poor memory	65%
Irritability	64%
Muscle fatigue	62%
Metallic taste	61%
Bloating	58%
Headache	58%
Joint pain	57%
Throat pain	57%
Allergies	55%
Poor appetite	51%

Prior to amalgam removal, all patients had an average of 17.4 of the 38 symptoms and complaints listed in the study. The 58 patients who reacted strongly to many metals had on average no more symptoms and complaints than the 60 patients who demonstrated milder total reaction to metals.

Blood Serum Globulin Reaction

All patients had a blood test taken at an authorized laboratory. The separated blood serum was frozen and sent via SAS Cargo to the Diagnostic Center's laboratory in Colorado Springs, Colorado, USA. This laboratory, under the direction of Hal Huggins DDS, MS, is state approved and highly reputable.[13]

Another laboratory in Colorado Springs, under the direction of W.J. Clifford, MS, member of IAOMT (International Academy of Oral Medicine and Toxicology), performed the same serum analysis.[14]

The test performed is described in medical literature as a precipitin test. The test determines the quantity of globulins (IgA, IgG and IgM) formed when the patient's blood serum comes in contact

Table 1. Precipitin Globulin Test for Dental Materials and other Metals.

Strong Reaction		Moderate Reaction		Reaction on "Amalgam-metals"	
Molybdenum	99%	Titanium	14%		
Zinc	97%	Selenium	14%	**Mercury**	82%
Cadmium	93%	Beryllium	10%		
Copper	92%	Iridium	3%		
Indium	87%	Lithium	1%	**Silver**	86%
				Platinum	5%
Silver	86%	Tungsten	3%		
Mercury	82%	Iridium	3%		
				Cobalt	4%
Copper	92%				
Aluminium	75%	Chromium	1%		
Nickel	79%	Bismuth	3%		
		Barium	2%	**Tin**	69%
Tin	68%	Antimony	2%		
Palladium	31%	Vanadium	8%		
Cerium	22%	Zirconium	0%	**Zinc**	97%
Iron	14%	Gallium	1%		
Selenium	14%	Strontium	1%		
Gold	14%	Ruthenium	2%	Rhodium	0%

with the metals, components and corrosion products in many dental materials.

The globulins are measured photometrically and the results indicate the relative serum reaction of individual patients. Besides the dental materials, the blood serum test applies to 34 additional metals. Participants responded positively to 32 of these metals. The distribution of patient's response is shown in **Table 1**.

Serum tests of patients showed that 98% reacted to some of the most popular composite materials. About 75 participants reacted to aluminium, which is present in many dental filling materials. Because aluminium is present in all glass ionomers, all patients who react to aluminium will react to this material. Some sufficiently strong composite dental materials, for example, Posterior II and Conquest, do not contain aluminium. These are composed of substances and metals to which most patients react mildly.

Metals Used in Dentistry

A tremendous variety of metals are used in dentistry. A gold crown normally consists of gold and platinum and may contain many different metals, especially in the case of a "discount crown," where silver, copper, palladium, tin, indium and/or molybdenum are substituted for the expensive metals. The metal hardware under porcelain crowns frequently contains gold, palladium, silver, platinum, tin, indium, gallium and copper. Wires for regulating teeth and bands placed around teeth are composed of nickel, chromium, molybdenum and silicon. Dentures made of metal, so-called unitors, are usually made of cobalt, chromium, molybdenum, silicon, titanium and sometimes nickel.

Many patients demonstrate globulin reactions to these metals, as indicated by the blood serum test. Participants reacted to a range of three to 19 metals, the average participant reacting to 10 metals. The metal reactions were calculated with values ranging from 1 to 9 for each metal, 9 being the strongest reaction. The average combined reactions to all metals totaled 40 points, ranging from 6 to 108 points. When the 5 amalgam metals (mercury, copper, silver, tin and zinc) are considered exclusively, the average reaction is 20 points ranging from 2 to 45 points.

The known potency of the material must be taken into consideration when comparing these reactions. For example, beryllium and mercury are known to cause adverse reactions with extremely small doses. Other metals like copper and aluminium may cause a relatively higher reaction as measured in point, without being more dangerous. However, in this study this issue is immaterial because for each patient we compare the total of reactions to all metal/amalgam metal with their symptoms before and after removal of metals.

We compared the change in the symptoms of participants who reacted strongly to amalgam metals with those of participants who reacted mildly to amalgam metals, and the same procedure was followed for those who had a strong or mild reaction to other metals. All amalgam fillings were replaced in all participants. Two thousand six hundred amalgam areas were removed, averaging 22 areas per patient. Twenty-nine patients had all other metals replaced, especially gold/porcelain. This group had 128 gold surfaces, average 4.4 per patient. The replacement of fillings took place according to methods recommended by Huggins, Colorado Springs, USA. His recommendations include:

1. Reinforcement of immune system with antioxidants, vitamins, minerals and special dietary; guidelines before and after treatment.
2. Protection from mercury vapour with rubber dam while drilling, and proper ventilation.
3. Strong external and internal oral suction.
4. Carbon tablet ingestion before and after

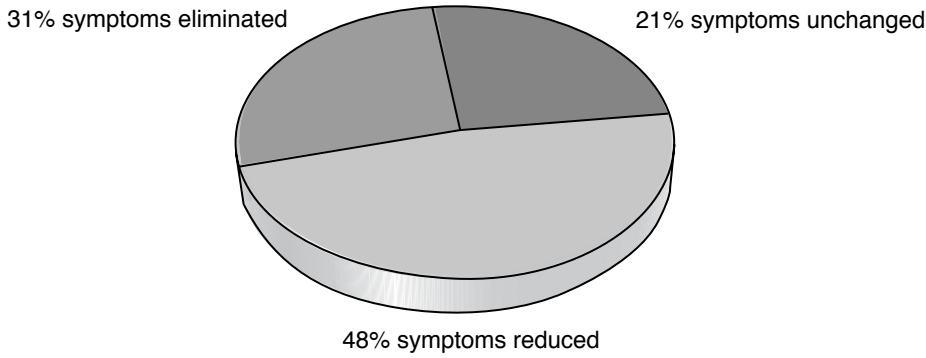

Figure 1. Change in Symptoms in Percent of the Whole Group after Proper Amalgam Removal

each treatment.
5. One drink of alcohol immediately before treatment.
6. Electrical checking of polarity of fillings was performed before each drilling to ensure that the fillings in the quadrant with the greatest negative charge were removed first. Treatments were not performed on the same days of the week to avoid depressed immune defense, which occurs on the 7th, 14th and 21st days after stress.
7. The patients had amalgam fillings and other metals replaced with the most biocompatible plastic material, as indicated by their blood serum test. The composite Posterior II was used in most cases
8. Each patient received a very detailed explanation and written instructions before treatment began.

All questions arising during treatment were addressed and the best results are obtained when both doctor and patient follow these methods.

Results After Proper Amalgam Removal

After amalgam removal, 79 participants had no amalgam or metals remaining. Thirty-nine had no visible amalgam, having elected to retain one or more gold or porcelain crowns, under which amalgam may be present. One to four years after removal, all patients responded to the same survey as previously noted, inquiring whether the 38 symptoms and complaints had improved, disappeared, or remained unchanged.

The results of this survey indicate that for the average participant regarding the 17 symptoms, 8.2 were reduced, 5.1 were eliminated, and 3.7 were unchanged. In other words, 48% of symptoms were reduced, 31% were eliminated, and 21% were unchanged (**Figure 1**). In total, 79% of the symptoms and complaints were reduced or eliminated after amalgam removal.

In over 90% of responses, the following symptoms were reduced or eliminated: tender teeth; bad breath; metallic taste; diarrhea; leg cramps; frequent infections.

In over 80% of responses, the following symptoms were reduced or eliminated: bleeding gums; blisters and sores; throat pains; nasal congestion; nasal discharge; irrational fear; headache, migraine, irritability, insomnia, dizziness, and muscle tremors.

The study depicted in **Figure 2** indicates that patients with mild reactions to metals are more likely to have fewer or no symptoms than those patients with strong reactions.

This difference is more pronounced when comparing patient's reactions to

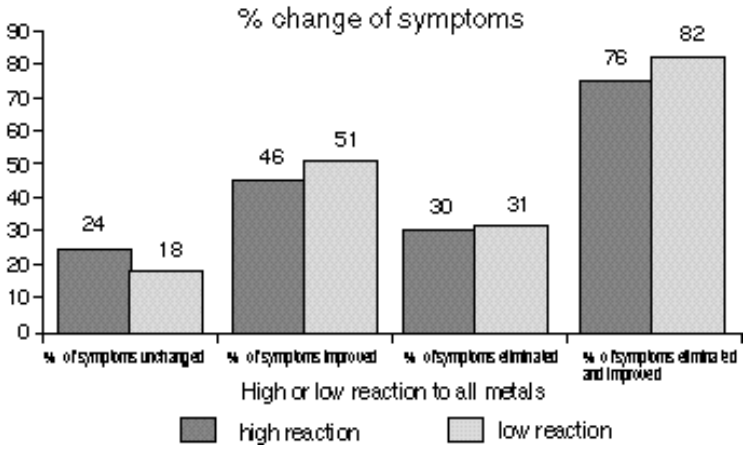

Figure 2.

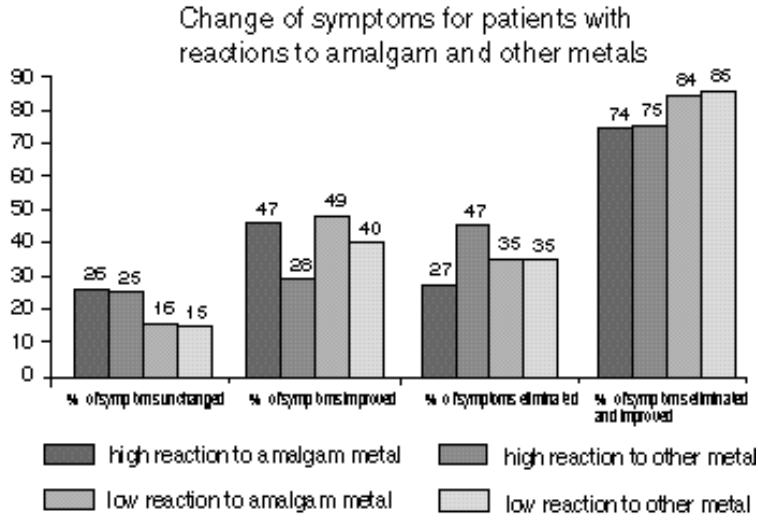

Figure 3.

the five amalgam metals (mercury, silver, copper, tin and zinc). Patients with strong amalgam metal reaction showed reduction or elimination of 74% of symptoms and complaints, whereas patients with mild amalgam metal reaction showed reduction or elimination of 84% (**Figure 3**).

In **Table 2** we see the group with mild metal reaction showed greater than 10% improvement in the following symptoms: allergies; skin problems; tender teeth; nasal discharge; constipation; fatigue; insomnia; muscle fatigue; muscle tremors; sciatic pain; joint pain; cold hands and feet, and frequent infections. The group with strong metal reaction showed greater than 10% improvement in the following symptoms: blisters and sores; digestive pain; heart problems.

Table 2. Changes in Individual Symptoms and Complaints Following Amalgam Removal.

Symptoms/complaints	No. of symptoms before amalgam removal.	No. of symptoms reduced after amalgam removal.	No. of symptoms eliminated after amalgam removal.	% of symptoms reduced or eliminated for those that had: low metal reaction.	% of symptoms reduced or eliminated for those that had: high metal reaction.
Allergy	65	40	3	57	73
Skin reaction	51	28	10	67	80
Bleeding gums	50	19	25	89	87
Tender teeth	49	20	29	78	100
Bad breath	41	20	17	90	91
Metallic taste	72	12	59	100	98
Blisters & sores	46	20	21	96	86
Watery eyes	43	19	15	82	75
Throat irritation	67	31	24	80	84
Facial tension	56	24	18	80	77
Nasal congestion	52	29	17	84	92
Nasal discharge	32	14	13	73	91
Bloating	69	33	18	71	76
Hunger pain	60	22	14	62	65
Poor appetite	21	8	8	77	75
Diarrhea	48	23	20	92	87
Constipation	44	22	7	59	74
Intestinal cramps	50	24	14	81	71
Headache	68	41	17	82	89
Migraine	21	11	6	78	83
Fatigue	98	54	19	67	82
Poor concentration	90	50	14	67	75
Poor memory	77	41	13	74	67
Irrational fear	42	27	10	89	87
Irritability	76	42	19	82	81
Depression	56	34	16	81	9
Insomnia	54	31	13	79	92
Dizziness	57	33	18	87	91
Muscle fatigue	73	33	14	51	80
Muscle tremor	53	21	21	74	90
Sciatic pain	30	17	4	57	81
Chest pain	31	13	9	69	72
Leg cramps	39	16	19	89	90
Joint pain	67	34	13	60	80
Cold hands-feet	58	20	18	51	81
Heart problems	25	11	6	82	57
Urinary system disorders	29	15	5	78	75
Frequent infections	43	20	19	83	100

Discussion

For years, science has demonstrated that mercury found in the body comes primarily from amalgam fillings.[15] It is also widely understood that many of the metals used in dentistry are toxic or hazardous.[16] Innumerable scientific experiments on animals and humans have demonstrated that mercury from amalgam is hazardous to cells and functions of organs. Specifically, mercury affects the immune system;[17] the kidneys;[18] mouth and colon bacteria;[19] the reproductive system;[20] and the central nervous system.[21]

Many clinicians have demonstrated over the course of the past century that removal of amalgam fillings and gold/porcelain fillings improves an extensive array of symptoms, complaints and diseases which have been otherwise unsuccessfully treated. Professor Fredrik Berglund's book, which appeared in 1995, surveyed the literature on this subject and collected the case histories of 150 patients whose diseases, symptoms or complaints were eliminated or reduced after removal of amalgam and other metals.[22]

Metal-Free Dentistry Is Possible Today

Dental use of metals is no longer necessary thanks to good composites and especially to the new PCDMA-based, shock-absorbing and extremely durable composites.[23–25] Laminate fortified composites with characteristics very similar to natural tooth material are now used for crowns and bridges.[26,27] These materials are tested for biocompatibility with the individual patient.

This study demonstrates the positive results of removing amalgam fillings and other metals from patients who suffer from an extensive array of symptoms which they have not otherwise been able to treat successfully. Obviously, some participants may anticipate improvement, which in itself may result in improvement. This placebo effect results in 20-25% improvement at best and disappears gradually over time. It generally takes six to 12 months or longer for symptoms to be eliminated or reduced. Patients completed surveys one year after treatment, and in some cases, again four years later, to take into account the slow therapeutic effects of amalgam removal.

Metal Deposits

Patients generally improve gradually as years pass after amalgam removal. This correlates with the fact that large deposits are continuously found in the tissues of the body and are slowly eliminated. An active detoxification treatment could accelerate the improvement. The patients with a strong reaction to amalgam metals did not recover as favorably as those with mild reactions. Metal deposits in tissues and organs may be present for years in different degrees in these two groups of patients.

Pyorrhoea

Periodontal diseases is very common. Forty-two percent of the participants in this study had bleeding gums and 46% had tender teeth, before amalgam and metal removal. It is commonly believed that bleeding gums and tender teeth are the early symptoms of pyorrhoea and are caused by plaque and microorganisms on teeth and in teeth sockets.

However, the results of this study indicate that metals and specially amalgam metals are the actual cause.[28] In this study,
88% of the incidence of bleeding gums was reduced or eliminated, and 91% of the incidence of tender teeth was reduced or eliminated

Digestive Problems

Digestive problems were very common among participants. They can be caused by many factors, but amalgam removal demonstrates a strong positive effect on these problems. The mercury released from the amalgam fillings combines with the saliva, forming extremely poisonous methyl-mer-

cury in the mouth, stomach and colon. The composition of digestive bacteria is changed as a result, and mostly mercury-resistant bacteria survive. Thus, many bacteria essential to healthy digestion are destroyed. A new study indicates that people with amalgam fillings have many more strains of penicillin-resistant bacteria than those without amalgam fillings.[19] The results after amalgam removal are as follows. (Expressed as the percent of patients experiencing reduction or elimination of symptoms)

Pressure and air in stomach (bloating)	74%
Acute hunger pains	60%
Poor appetite	76%
Diarrhea	90%
Painful colon cramps	76%

Central Nervous System

Problems with the central nervous system are also very common.(**Table 2**) Both recent and earlier studies demonstrate that mercury escaping from amalgam fillings, especially as mercury vapor, can harm the central nervous system. Alzheimer's disease is a primary example of this.[21] The results after amalgam removal are as follows: (Expressed as the percent of patients experiencing reduction or elimination of symptoms)

Headache	85%
Migraine	81%
Poor concentration	71%
Poor memory	70%
Irrational fear	88%
Irritability	80%
Dizziness	89%
Muscle tremors	79%
Leg cramps	90%

Immune System

The immune system is often debilitated by mercury.[17] Symptoms frequently include fatigue and frequent infections. These symptoms are significantly reduced or eliminated, as demonstrated by the following results. (Expressed as the percent of patients experiencing reduction or elimination of symptoms)

Fatigue	71%
Frequency of infections	91%

Kidney Function

Experiments with sheep and monkeys with implanted amalgam fillings demonstrate reduced kidney function.[30] Patients in this study also experienced similar improvements.(Expressed as the percent of patients experiencing reduction or elimination of symptoms)

25% of participants had urinary system disorders prior to amalgam removal.
52% of these patients experienced reduced symptoms after amalgam removal.
17% eliminated urinary system disorders after amalgam removal.

Conclusion

Many symptoms commonly associated with mercury intoxication can be related to harmful effects from metals used in dentistry. About 16,500 observations were gathered during the prolonged study of these 118 patients; these data indicate that about 80% of the symptoms and complaints were eliminated or reduced one to four years after removal of dental metals, especially amalgam metals (mercury, silver, copper, tin and zinc) and proper replacement with biocompatible plastic. This study confirms other classic and scientific results,[30,31] and suggests that dentists should avoid the use of metals because of the reactions they clearly cause in many patients.

The greatest positive reactions are shown by the group with the mildest blood serum-globulin test reaction for the amalgam metals. This suggests that the determining factor for the degree and rate of recovery is dependent on the patient's individual tolerance and degree of reaction to certain metals.

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