MULTIPLE SCLEROSIS AND DENTAL MERCURY: SUMMARY AND REFERENCES

Last Updated by the IAOMT on December 22, 2016

Multiple sclerosis ("MS") was first commonly identified in the nineteenth century during the time frame in which amalgam fillings came into common use. Unpublished anecdotal evidence has indicated that a significant number of, but certainly not all, MS victims who have their mercury/silver fillings removed resolve (spontaneous remission) or improve gradually. This anecdotal evidence has been supported by published studies over the course of the past 50 years.

For example, in work published in 1966, Baasch concluded that multiple sclerosis was an adult form of acrodynia (pink disease) and a neuro-allergic reaction caused, in most cases, by mercury from amalgam fillings.[1] Baasch reported several specific cases and cited ongoing studies that showed cessation of progression and improvement of resolution of MS after removal of amalgam fillings.

In a detailed study published in 1978, Craelius showed a strong correlation ($P < 0.001$) between MS death rates and dental caries.[2] The data demonstrated the improbability that this correlation was due to chance. Numerous dietary factors were ruled out as contributing causes.

A hypothesis presented by T. H. Ingalls, MD, in 1983 proposed that slow, retrograde seepage of mercury from root canals or amalgam fillings might lead to MS in middle age.[3] He also reexamined the extensive epidemiological data that showed a linear correlation between death rates from MS and numbers of decayed, missing, and filled teeth. In research published in 1986, Ingalls suggested that investigators studying the causes of MS should carefully examine the patients' dental histories.[4]

Other studies continued to establish the potential connection between MS and mercury. For example, research by Ahlrot-Westerlund from 1987 found that MS patients had eight times the normal level of mercury in their cerebral spinal fluid as compared to neurologically healthy controls.[5]

Additionally, researchers Siblerud and Kienholz of the Rocky Mountain Research Institute, Inc., investigated the hypothesis that mercury from dental amalgam fillings is related to MS in work published in 1994.[6] It compared blood findings between MS subjects who had their amalgams removed and MS subjects with amalgams:

> MS subjects with amalgams were found to have significantly lower levels of red blood cells, hemoglobin, and hematocrit compared to MS subjects with amalgam removal. Thyroxine levels were also significantly lower in the MS amalgam group, and they had significantly lower levels of total T Lymphocytes and T-8 (CD8) suppressor cells. The MS amalgam group had significantly higher blood urea nitrogen and lower serum IgG. Hair mercury was significantly higher in the MS subjects compared to the non-MS control group. A health questionnaire found that MS subjects with amalgams had significantly more (33.7 %) exacerbations during the past 12 months compared to the MS volunteers with amalgam removal. [7]

The role of myelin, a substance which helps the brain send messages to the body, is an essential component of MS research, and the MELISA Foundation has developed what they believe is a breakthrough in understanding MS by recognizing the link between metal allergy and the erosion of myelin. In research published in 1999, Stejskal and Stejskal noted that hypersensitive reactions are triggered by metal particles entering the body of a person allergic to the metal in question.[8] These particles then bind to the myelin, slightly changing its protein structure. In hypersensitive people, the new structure (myelin plus metal particle) is falsely identified as a foreign invader and is attacked (an autoimmune response). The culprit appears to be the "myelin plaques" in the brain, which are common in patients with MS. Such plaques can be the result of metal allergy. The MELISA Foundation soon began documenting that patients with autoimmunity issues make a partial and, in some cases, a full recovery by removing the source of metal—often dental fillings.[9]

A retrospective cohort study by Bates et al. published in 2004 included examining the treatment records of 20,000 people in the New Zealand Defence Force (NZDF).[10] The researchers aimed to explore potential links between dental amalgam and health effects, and their findings led them to suggest a "relatively strong" association between MS and dental amalgam exposure. Furthermore, three previously published MS case control studies that concluded there were not significant associations with dental amalgam mercury fillings[11] [12] [13] were identified by Bates et al. as having various limitations. Even more specifically, Bates and his colleagues noted that only one of those three studies used incident cases and dental records, and that the same study actually produced higher risk estimates for a larger number of amalgam mercury fillings.[14]

A systematic review of literature about dental amalgam and multiple sclerosis was conducted by Canadian researchers and published in 2007.[15] While Aminzadeh et al. reported that the odds ratio risk of MS among amalgam-bearers was consistent, they suggested it was a slight and non-statistically significant increase. However, they mentioned the limitations of their own work and also recommended that future studies should take other factors into account such as amalgam size, surface area, and duration of exposure when further examining any link between dental amalgam and MS.

Seventy-four patients with MS and seventy-four healthy volunteers were the subjects of an Iranian study by Attar et al. published in 2011.[16] The researchers found that the serum mercury level in MS patients was significantly higher than the controls. They suggested that the higher levels of mercury in serum could be a factor in susceptibility to multiple sclerosis.

In 2014, Roger Pamphlett of the University of Sydney in Australia had a medical hypotheses published that linked environmental toxicants, including mercury, to disorders of the central nervous system.[17] After describing exposure to toxicants and the impact on the body, he proposed: "The resulting noradrenaline dysfunction affects a wide range of CNS cells and can trigger a number of neurodegenerative (Alzheimer's, Parkinson's and motor neuron disease), demyelinating (multiple sclerosis), and psychiatric (major depression and bipolar disorder) conditions." [18]

Research published in 2016 showed that Pamphlett had collected evidence to support his hypothesis. He and a colleague studied spinal cord samples from 50 people aged 1-95 years old.[19] They found that 33% of those aged 61-95 had heavy metals present in their spinal interneurons (whereas younger ages did not). The research led them to conclude: "Damage to inhibitory interneurons from toxic metals in later life could result in excitotoxic injury to motoneurons and may underlie motoneuron injury or loss in conditions such as ALS/MND, multiple sclerosis, sarcopenia and calf fasciculations."[20]

Another study published in 2016, from researchers at the University of North Carolina, the Centers for Disease Control and Prevention, and Duke University, likewise examined the potential link between heavy metals and multiple sclerosis.[21] 217 individuals with MS and 496 controls were included in the population-based case control study, which was designed to evaluate the relationship between exposure to lead, mercury, and solvents and 58 single nucleotide polymorphisms in MS-associated genes. Napier et al. found that individuals with MS were more likely than the controls to report lead and mercury exposure.

It is also essential to note that a number of case histories published within the last 25 years, in addition to some of the research mentioned above, have documented the potential for MS patients to experience varying levels of health improvements after having their amalgam fillings removed. Research by Redhe and Pleva published in 1993 highlighted two examples from over 100 patient cases evaluating the immunological effects of dental amalgam. [22] They suggested that amalgam removal generates beneficial results in some cases of MS. As another example, a study by Huggins and Levy published in 1998 indicated that removing dental amalgams, when conducted with other clinical treatments, altered the photolabeling characteristics of cerebrospinal fluid proteins in individuals with MS.[23]

Other examples also provide evidence of potential benefits of amalgam removal to MS patients. Research from the MELISA Foundation published in 2004 evaluated the health effects of amalgam removal in mercury-allergic patients with autoimmunity, and the highest rate of improvement occurred in patients with MS.[24] Additionally, a case history published in 2013 from Italian researchers documented that a patient with MS who had mercury fillings removed and then underwent chelation therapy (a specific type of detoxification) improved.[25] The researchers, one of whom is affiliated with the Ministry of Health in Italy, wrote that the evidence presented tends to "confirm the hypothesis of TMP [toxic metal poisoning] as an environmental or iatrogenic trigger for MS, especially when inadequate detoxification lies at the root."[26]

Although more research is needed to determine the full extent of the relationship between mercury and MS, scientific literature published within the past 50 years continues to suggest that mercury exposure from dental amalgams, as well as from any other chronic low-grade mercury exposure, must be given serious consideration for a potential role in the etiology of MS. It must also be remembered that other toxic exposures likely play similar roles, which helps to explain why some MS patients do not have mercury amalgam dental fillings or other known mercury exposures. For example, a study published in 2016 by researchers in Taiwan linked MS to lead exposure in soil.[27]

Also important to remember is that overall, the most current research is demonstrating that the causation of MS is most plausibly multifactorial. Thus, mercury can be viewed as merely one probable factor in this disease, and other toxic exposures, genetic variabilities, the presence of metal allergies, and a number of additional circumstances play potential roles in MS as well.

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