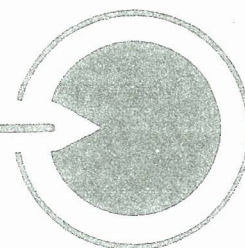


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SPECIAL ARTICLE

Amalgam - The New Fish Bait
Sam Ziff

The ADA News, December 1, 1986 contained an article titled "mercury - from fish to fillings". The article was apparently written to "quiet" the growing concern of the public and practicing dentists regarding the "true" safety of mercury/ amalgam as a dental material.

The objectivity of this article on a scale of 1-10 rates 0. In the face of overwhelming scientific evidence raising serious questions on the propriety of the dental profession continuing to use mercury amalgam, the ADA has once again demonstrated it's impotence to provide any corresponding scientific research supporting it's pro-amalgam public statements.

As a trade organization collecting millions of dollars annually from it's dues-paying dentist membership as well as exercising the major influence on how and what the U.S. Government grant funding in dental research is expended upon, the ADA certainly has the means and influence to insure that suitable scientific research is done to verify their currently "unscientific" position that the small amount of mercury vapor released from dental amalgam fillings does not pose a health hazard except in those few individuals hypersensitive to mercury. If I were a dues-paying member of the ADA I would demand to know why action has not been taken to fund the research required to once and for all answer the question of mercury amalgam filling biocompatibility in humans, especially in view of the inherent liability related to each dentist's continued use of amalgam if not scientifically proven to be harmless.

I would find the motives of the ADA much more in line with their chartered responsibilities if they had set out to replicate the scientific studies of Dr Kuntz et al. and Dr. Abraham et al., rather than attempting to denigrate them. It is incomprehensible to me that the only ADA response elicited by an article that was published in the premier refereed research journal of the dental profession was to wait three years after publication and then attempt to attack and impugn the entire research project and its conclusions.

For those of you who have never read the Abraham et al. article I would like to quote the last paragraph: "The health hazard of blood mercury levels associated with dental amalgams has not been documented. It is however, of interest that the average blood mercury level for the amalgam group reported here (0.7 ng/ml) was similar to that reported by Kuntz et al. (1982) for a group of 57 pre-natal patients (0.79 ng/ml). In the latter group, a significant correlation was found between the history of

stillbirths and mercury levels in both maternal and cord blood. Further, the occurrence of malformed infants in previous births correlated significantly with pre-natal mercury blood levels. None of the histories obtained from that group reflected possible exposure to mercury except for that related to the presence of dental amalgams. It is important to note that the blood mercury levels were measured with the same type of apparatus for both studies. Given these facts, the small increase in blood mercury levels that is statistically associated with dental amalgam restorations should be a matter of concern for dentists as well as for the recipients of these restorations." Those conclusions should have raised immediate concerns by responsible personnel within the U.S. Government and the ADA. To do less was, and is, totally irresponsible.

Back to our "fish story" that started all of this. Dr. P.L. Fan (associate secretary, ADA Council on Dental Materials, Instruments, and Equipment), and Dr. Dan Langan (director of the ADA Mercury Testing Service) were given "creative license" by Dr. Enid A. Neidle, (Director of the ADA Division of Scientific Affairs) to further the pro-amalgam cause. Drs. Fan and Langan singled out the article by Abraham et al. as the sole reference on which to exercise their "creative license".

The first order of business seemed to be to call into question the statistical significance of the blood mercury levels reflected in the Abraham et al. article: "the mean blood mercury concentration in a group of subjects with dental amalgams was found to be 0.7 nanograms per milliliter (ng/mL) compared to 0.3 ng/mL for subjects with no amalgam. Taking into account the density of blood, this comes to about 0.7 ng per gram of blood (ng/g)-but how much is that' Dr. Langan asked. A nanogram is 1×10^{-9} g or 1 billionth of a gram, so 0.7 ng/g means that there is 0.7 of one billionth of a gram of mercury in each gram of blood. This is unarguably an extremely minute quantity,' Dr. Langan said. It should be noted that the group with no amalgams had a blood level of 0.3 ng/g and the difference between groups was only 0.4 ng/g. To assume the difference has biological significance is questionable'."

It would seem from the inference drawn by Dr. Langan that the entire research findings of Abraham et al., were without merit and by association Kuntz et al., were placed in the same category. It would have been extremely useful if Dr. Langan had cited some basis or accepted authority for his statement claiming that higher mercury blood levels in individuals with amalgams is only of questionable biological significance.

Perhaps we can shed a little light on the subject for Dr. Langan and tell him why he should be concerned about the "insignificant" statistical difference between people with amalgams and those without amalgams. In normal individuals there is almost