DR CHINOY’S RESPONSE

In his letter concerning my Editorial “Fluoride stress on antioxidant defence System,” which appeared in Fluoride 2003;36(3):138-41, Dr GB Reddy agrees that many more systematic and well-designed studies employing standard methodology are required to conclude that oxidative stress exists in fluorosis/fluoride toxicity. His suggestion to determine production of free radicals by ESR measurements is indeed welcome. However, such facilities might not be widely available nor may such studies be feasible. Hence an indirect approach has been followed in several papers, including his with his co-workers,1 by measuring anti-oxidant enzymes and levels of lipid peroxides.

Clearly, the issue is controversial. Still, only a comparatively smaller number of publications exist which do not subscribe to oxidative stress in fluorosis as opposed to the many that do. At this point Reddy et al.1 have just one paper on the basis of which they have suggested that “the results together do not subscribe to oxidative stress theory in fluorosis.”

Strong evidence for oxidative stress by fluoride has been reported in a number of tissues (brain, liver, kidney, testis, cell lines, etc.) of animals and humans.2-11 There are also other studies of Chinese origin concerning this subject, but many of these are available in English only as abstracts of papers that have appeared in Chinese journals or in symposia proceedings. Moreover, in consequence of what in part may be oxidative stress, disturbances and impairment of proteins, lipids, and nucleic acids in fluoride toxicity are well documented in both in vivo and in vitro studies in animal and human tissues.12-35

It should also be noted that antioxidants and other antidotes (chemicals, herbals, vitamins, etc.) have proved beneficial in mitigating/ameliorating and recovery not only from fluoride intoxication but also from toxicity induced by arsenic and aluminium in humans and animals as is evident from recent work by Sun and his associates36,37 and by our co-workers Verma and Sherlin.30 Hence it is appropriate and justified to advocate the use of antioxidants for treating fluoride toxicity, keeping in mind the millions who are suffering from this malady the world over.

In my opinion, which I am sure many will share with me, more extensive systematic work on oxidative stress in relation fluoride toxicity is called for in different organs and systems of animal models and humans. At this
point it is futile simply to present arguments and counterarguments. I am grateful for this opportunity to present my views.

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REFERENCES

Editor's Note: A now corrected error in SciFinder Scholar led to the erroneous citation of this paper in Biol Trace Elem Res in ref 17 of Dr Chinoy’s editorial, Fluoride 2003;36:138-41. We are sorry about this mistake.
11 Chinoy NJ, Shah SD. Sodium fluoride and/or arsenic trioxide induced free radical toxicity in brain of mice and its amelioration by some antidotes. Fluoride (submitted for publication).

