Preface

Water is the life and prime importance for living beings on the planet. However, the human activities, rapid industrialization and urbanizations has lead to the pollution of drinking water and the contamination may be chemical or biological. The prominent one in chemical contamination is water fluorosis, i.e. Excess fluoride in the drinking water. Fluorosis is the most widespread geochemical disease in India, affecting more than 66 million people including 6 million children under 14 years age. In spite of little positive benefits, many risks such as brain disorders, thyroid problems, bones and teeth disorders, disorders of kidney and increased susceptibility for prevalence of cancer because of fluoride toxicity. The various districts in Andhra Pradesh, prominently Nalgonda, the Nellore and Anantapur are the most predominant fluorosis threaten areas and several cases of renal failures in Nellore district has been implicated because of the possible role of fluorosis in renal diseases, and these are very predominant in low income group people who are dependent on drinking water from ground water source.
This made us to initiate an analysis and study to know the possible role of fluoride toxicity in renal failure in selected areas of Nellore district of Andhra Pradesh, where the people are wholly dependent on gound water for consumption of drinking water. Even though several studies were conducted on fluorosis and its health hazards, there were no reports on fluorosis mediated renal failures, hence the present study has been initiated. In addition to this, the study has been extended to analyze the exploitation of glomerular, tubular markers and angiotensin converting enzyme (ACE) gene polymorphism. The glomerular and tubular markers can provide an exact data of the renal failures. Usually this can be done in diabetic nephropathy. ACE gene polymorphism (insertion/ deletion) is a correct molecular approach to estimate the exact mechanism behind the prevalence of nephropathy. It was very much essential to know the relationship between the fluoride intake and renal failures in the affected people.

With this background the present study has been initiated in selected villages of Udayagiri Mandal by omitting the patients of diabetes and hypertension, as these can contribute for the development of renal failures. The study has been initiated with the analysis of local drinking water sources in the selected villages, and after confirming that they contain excess levels of fluoride in drinking water, and all further studies
were conducted in these three selected villages. The results and conclusions were incorporated in the thesis as five chapters, Introduction, Material and Methods, Results, Discussion, Summary and Conclusions and References. The present study is an attempt to know the intensity of fluoride toxicity in this area of Andhra Pradesh and to know the possible reasons for several cases of renal failures in this area. Definitely, the present study bound to yield fruitful information on many lines of applicability in both economic and social dimensions for improvement human health in this area.

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