

Restorative Dentistry facing Global Mercury Agreement

On January 19, 2013, over 140 member states that attended at Minamata Convention in Geneva agreed to the Global Mercury Agreement. The new treaty puts in control and ultimately banned production, export and import of a range of mercury-containing products by 2020. These include batteries, switches, fluorescent lamps, soaps, cosmetics, and non-electronic medical devices such as thermometers and blood pressure devices. The use of dental amalgam was also agreed to be phased-down.¹

Restorative Dentistry, which is originated in Operative Dentistry, is an innovative and dynamic specialty motivated by the development and improvement of clinical practice, basic biology and material sciences. The beginning of contemporary scientific research on dental materials may be referred to the amalgam research by G. V. Black in 1895.² The development of the high-speed handpiece played a dramatic role in increasing efficiency of dentistry. Restorative resin composites and dental adhesives encouraged the advent of the esthetic dentistry and the adhesive dentistry as the major scopes of the restorative dentistry. Concurrently, increased knowledge about the carious process and preventive measures resulted in a decrease in caries incidence.³ These innovations have played an important role in the improvement of the Restorative Dentistry, which, in turn, has served as a profession of fidelity for the dental health of mankind. Amalgam, which is more economically advantageous and affordable in various circumstances, most particularly in developing countries, than any other currently available dental filling materials, has contributed substantially to the mankind by protecting from dental diseases and improving general health.

Even though dental amalgam devoted itself to dental health of mankind enormously for more than one hundred and fifty years, the material was suffered from continuous and tough witch-hunting. Against the amalgam war, most dental professions including FDI, ADA and FDA provided continuously their positions on the safety of the set dental amalgam in the mouth.^{4,5} Although amalgam restoration has been prohibited in increasing number of countries due to the problems in the material properties including poor tensile strength and corrosion susceptibility, and the environmental issues, amalgam still survives as the material of choice on the restoration of posterior small cavities and posterior metallic core materials with excellent longevity data.^{6,7} Many dental schools still include amalgam restorations in their curriculum. In my school, students start to learn the pre-clinical restorative practice from dental amalgam restorations during the freshman class. Nevertheless, although the mercury release from the set amalgam in the oral cavity was reported to be much below the health standards, amalgam is now destined to be faded-down by the environmental agreement, not by the health concern.³

The clinical procedures of restorative dentistry depend on the material properties of the restoratives used. The features of tooth preparation and restorative techniques have changed greatly from amalgam restoration to esthetic adhesive restorations such as resin composite and ceramic restorations. The professions should continuously develop new innovative materials and their clinical procedures, and follow the prognosis by way of well-controlled clinical studies. In the near future, Restorative Dentistry may face the expulsion of the 'long-lasting and valuable' dental amalgam from the scope by the Global Mercury Agreement. As usual, we should focus our ability on the research, treatment and education of the specialty by devoting ourselves to improving the new restorative materials such as amalgam alternatives and amalgam substitutes and to developing the innovative concepts, materials, and clinical procedures.

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