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Mercury Pollution from Dental Amalgam Waste in Trinidad and Tobago

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ABSTRACT

Aim: To assess the knowledge and attitudes of dental practitioners regarding the disposal of amalgam waste from dental practices and to assess the level of mercury released via dental amalgam waste into the environment in Trinidad and Tobago. Method: A questionnaire on dental wastewater discharge and amalgam waste disposal was administered to dental practitioners in Trinidad and Tobago. Levels of mercury in samples of wastewater and solid deposits obtained during removal of 160 amalgam fillings, were measured using Atomic Absorption Spectrometry. The numbers of amalgam fillings placed and removed over a monthly period from a random sample of dental practices in Trinidad and Tobago were also obtained via the questionnaires. The amount of mercury entering the environment from dental practices was estimated from these data. Results: Twenty per cent responded to the questionnaire. Thirty per cent of respondents used elemental mercury (from a dispenser), while 74.4% used pre-capsulated mercury for preparing amalgam fillings. Seventy nine per cent used chair-side traps and filters but none had amalgam separators in their surgery. Methods used to dispose of amalgam waste included disposal in the trash (48.8%), washing down the sink (39.5%); and as hazardous waste (37.2%). A mean concentration of 0.0759 ppm (or mg/L) mercury was found in filtrate from the wastewater samples. A total concentration of 3.4 g mercury per dentist per day was found to be released into the environment via dental amalgam waste in Trinidad and Tobago. Conclusion: Best management practices for disposal of dental amalgam waste are not generally followed. At 3.4 gms per day per dentist, the level of mercury released via dental amalgam waste into the environment in Trinidad and Tobago may be too high. Dental practitioners require education on the management of dental amalgam waste and national legislation to protect the environment from this source of mercury may be required.

KEYWORDS

Dental Amalgam, Mercury Pollution

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