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Reviewing of mercury amount in Omega3 drug forms

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ABSTRACT

Mercury is one of the heavy metals, which is found in the nature in three forms of element, organic and inorganic. Mercury is a silver, heavy, toxic and liquid metal. Mercury and its compounds are absorbed to body through skin, swallowing and breathing. The most important way of mercury absorption is through breathing that damages the stomach and intestine. Omega3 is of necessary fatty acids that body is not able to produce and synthesize them and they must be provided through food andvegetable and marine oils.Omega3 fatty acids are categorized into 3 categories of DHA, EPA and ALA. Oil fishes such as sardine, salmon and mackerel are rich sources of DHA and EPA. Oils, egg and fruit juices are among the enriched foods through Omega3. According to the performed research, Omega3 drug forms that are represented as mercury-free from valid plants of different countries, their mercury has been fully refined and is proper alternatives as a supplement.

Key words: Mercury, Omega3, Drug.

Introduction

Mercury poisoning is very important due to sever damages occurrence. The effect of contact with mercury has been reviewed on the children's growth in a study in New York Rochester University and after gathering mercury toxic effects related information keyresearchers expressed that some mercury forms are Neurotoxic and cause clinical signs in high dosages.

Researches show that major part of mercury in fish tissueis existed in organic form (mercury methyl). Several discussions can be mentioned in relation to mercury amount in fish. First, mercury amount in bigger and older fishes is more than younger fishes and second, mercury amount in carnivore fishes such as shark and pike is more than herbivorous fishes.

Mercury toxicokinetics (absorption, emission, metabolism and disposal) depends extremely on the mercury form that a person has been supposed.

For example, elemental mercury is not able to be absorbed significantly through human digestive system and disposed almost fully. So, it has low toxic effects. However, elemental mercury is absorbed to the lungs easily and quickly through respiratory system. Approximately 80 percent of the inhaled vapors are absorbed through the lung tissues. About 90 % of mercury methyl form is absorbed through digestive system. Mercury methyl has relatively long biological half-life (44 to 80 days) in human body.Mercury methyl can also transfer to the infant through mother's milk. Mercury methyl is associated with neural and cardio-vascular problems in the adults. The mercury methyl that is accumulated in fishes' bodies can be easily absorbed to the pregnant women's bodies by eating fish and leads to some problems in developing neural system in the fetus. These signs include mental retardation, blindness and hearing problems, growth and complementation retardation, speech and memory disorders.According to the importance of Omega3 as food supplement, reviewing of mercury amount in Omega3 drug forms is a research motivation.

Methods:

The most common methods of mercury amount measurement are colorimetric, neutron absorption, spectrometry, atomic absorption, chromatography gas and liquid, and mass spectrometry.

Commercial unit for working with mercury is flash that its weight is equal to 76 Ib.

Nobody knows certainly that how much the mercury normal limit in human body is. Mercury allowed limit in work environment air was approximately 0.1 milligrams in cubic meters, 3% milligrams in litter, 0.07 to 0.2 ppm in muscles, 0.018 to 3.7 ppm in liver and 0.45 ppm in bone and its total amount in a 70 kilograms person's body is 60 milligrams. Mercury average amount that enters daily to human body through food is 0.03 that this amount doesn't cause any problem from poisoning viewpoint. In addition, the existent mercury amount

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in water is about 0.06 micrograms in litter and 0.03 micrograms in litter in sea water. The existent mercury amount in soil has been reported about 10 to 15 ppb and 1.9 to 231 ppm in petroleum.

It was specified after mercury measurement that mercury amount in Omega3 drug formsthat are represented as mercury-free from valid plants of different countries, their mercury has been fully refined.

Results and Discussion

Nowadays, nutritionists suggest that people include fish in their diet to benefit from health benefits but according to the present study, it was specified that special considerations must be considered in eating some fishes such as Kafshak and shark fish, so that limitation and even prohibition of eating are mentioned about some fishes.

Some health responsible organizations in some countries such as United States (including Food and Drug administration (FDA) organization) avoid many problems due to the existent of the pollutants in marine foods by placing fish eating correct pattern and/or suggest to eat refined and mercury-free Omega3 from valid plants of different countries with cold water (mercury is deposited in cold water and its absorption is minimized in fish body) that is a proper alternative.

References

1. Davidson, pw., GJ. Myers, B. weiss, 2004. mercury exposure and child development out comes. Pediatrice 113(4suppl): 1023-9.
2. Santos, LSN., RCS. Muller, JES. Sarkis, CN. Alves, ES. Brabo, EO. Santos, *et al*., 2000. Evaluation of total mercury concentrations in fish consumed in the municipality of Itaituba, Tapajos River Basin, para, Brazil.Sic Total Environ., 261: 1-8.
3. Weech, SA., AM. Sheuhammer, JE. Elliott, Km. cheng, 2004. mercury in fish from the pinchi lake Region, British Columbia, conada. Environpollut., 313: 275-286.
4. Davis, JA., BK. Greenfield, G. Ichikawa, M. Stephenson, 2008. Mercury in sport fish from the Sacramento-San Joaquin Delta region, California, USA.Sci Total Environ., 391: 66-75.
5. Joanna, B., Gochfeld M. Risk, 2007. to consumers from mercury in pacific cod(Gadusmacrocephalus)from the Aleutians: fish age and size effects.Environ Res., 105: 276-284.
6. Matsunaga, K., 1978. Concentration of Mercury in Marine ANIMALS.Bulletin of the faculty of fisheries Hokkaido., 29: 70-74.
7. Giblin, FJ., EJ. Massaro, 1973. Pharmacodynamics of methy mercury in the rainbow trout (Salmogairdneri): Tissueuptake, distribution and excretion. Toxicol Appl Pharmacol., 24: 81-91.
8. Jewett, SC., X. Zhang, A. Sathy Naidu, JJ. Kelley, D. Dasher, LK. Duffy, 2003. Comparison of mercury and methlmercury in northern pike and Arctic grayling from western Alaska rivers. Chemoshpere., 50: 383-392.
9. EPA., U.S., Environmental Protection Agency.Mercury [cited 20011] Available from: URL: http:// www.epa.gov/mercury/effects.htm.
10. Budtz-Jorgensen, E., P. Grandiean, PJ. Jorgensen, P. Weihe, N. Keiding, 2004. Association between mercury concentrations in blood and hair in methylmercury-exposed subjects at different ages.Environ Res., 2004: 95: 385-393.
11. Dolbec, J., D. Mergler, F. Larribe, M. Roulet, J. Lebel, M. Lucotte, 2001. Sequential analysis of hair mercury levels in relation to fish diet of an Amazonian population, Brazil. Sci total Environ., 271: 87-97.
12. Dorea, JG., JR. de Souza, P. Rodrigues, I. Ferrari, AC. Barbosa, 2005. Hair mercury (signature of fish consumption) and cardiovascular risk in Munduruku and Kayabi Indians of Amazonia. Environ Res., 97: 209-219.
13. Yastake, A., M. Matsumoto, M. Yamaguchi, N. Hachiya, 2004. Current hair mercury levels in Japanese for estimation of metylmercuryexposure.Journal of Health Science., 50: 120-125.
14. Farzin, L., M. Amiri, H. Shams, MA. Ahmadifaghih, ME. Moassesi, 2008. Blood levels of lead. Cadmim, and mercury in residents of Tehran.Biol Trace Elem Res., 123:14-26.
15. Counter, S., L. Buchanan, 2004. Mercury exposure in children: a review. Toxicol Appl Pharmacoly. 498: 209-230.
16. Gao, Y., C. Yan, Y. Tian, Y. Wang, H. Xie, X. Zhou, *et al*. 2007. Prenatal exposure to mercury and neurobehavioral development of neonates in zhoushanCiry, China.Enviro Res., 105: 390-399.
17. McDowell, MA., CF. Dillon, J. Osterloh, PM. loger, E. Pellizzari, R. Fernando, 2004. Hair mercury levels in US children and wome of childbearing age. Reference range data from NHANES 1999-2000.Environ Health Perspect., 112: 1165.
18. Oken, E., KP. Kleinman, WE. Berland, SR. Simon, JW. Rich-Edwards, MW. Gillman, 2003. Decline in fish consumption among pregnant women after a national mercury advisory.Obstet Gynecol., 102: 346-351.
19. Salehi, Z., A. Esmaili-Sari, 2010. Hair mercury levels in pregnant women in Mahshahr, Iran: Fish consumption as a terminant of exposure. Sci Total Environ., 408: 4848-4854.
20. http://periodic.lanl.gov/elements/80.html.