

The Fact Sheet (series no.5) – Copper Chronic poisoning by copper in tap water

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Source: Eur J Med Res, 1999 Jun, 4:6, 219-23

Abstract: Copper can induce acute and chronic intoxications in humans. Copper in tap water has caused a series of severe systemic diseases in Germany in recent years (copper induced liver cirrhosis). Besides cirrhosis, another type of disease with predominantly gastrointestinal symptoms has occurred which likewise appeared to be induced by copper in tap water.

In a retrospective investigation we looked for additional indications and proof that chronic copper poisoning has been the cause of the observed gastrointestinal diseases.

All patients suffering from this type of disease had copper plumbing in their houses. The patients (children and adults) suffered from nausea, vomiting, colic, and diarrhoea. In the group of infants, one refused formula milk (prepared with tap water) and the others suffered from persistent restlessness, unexplainable screaming (especially at night) and/or long lasting diaper rash.

We accept the diagnosis of chronic copper intoxication as the cause of the gastrointestinal symptoms when at least one of the following criteria are fulfilled:

1. First manifestation, remission and relapse of the disease depend on intake and a non-intake of water containing copper, respectively.
2. Hypercupric state of the patients (i.e. pathological high concentrations of the non-ceruloplasmin-bound copper in serum and/or elevated copper levels in urine).
3. Signs of systemic copper intoxication in the same patient.
4. Signs of systemic copper intoxication or hypercupric states in members of the patients' family or in his neighbourhood (non-relatives).

We found that the disease can even be caused by copper concentrations below the allowed concentration given by the German Guidelines for Drinking Water (Trinkwasserverordnung). - The data prove that copper in drinking water can cause gastrointestinal diseases and not only the better known systemic diseases (i.e. copper induced liver cirrhosis). Copper poisoning must be considered as a possible cause of chronic gastrointestinal diseases in those countries in which copper plumbing is common.

If you wish to protect yourself and your family from a wide range of undesirable substances commonly found in tap water, you should select point-of-use ceramic water filtration.

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