

***Sheet no. :rec (20)***

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Where talking about the water related diseases and we mention 5 groups of diseases , caused by biological contamination and the last one was (water dispersed disease) . today we will talk about (water waste ) where we saying that (water related diseases ) caused by ?? what is the cause of water related diseases ? " the doctor didn't answer it "

Now let’s talk about chemicals in water .all chemicals can found in water So any chemical in soil can reach to the water , these chemical dissolve in water but when they are soluble in water then you might take them So any chemical at all can cause this problem .

We can classified all chemical in water as(we can say ):

* Organic
* In organic

But in more details we have three groups of chemical in water:

* Toxic chemical, can cause health hazard when the exceed certain limit.
* Chemical that interferes with acceptability of water for drinking purposes.
* Chemical that are useful or benefit to health however can cause problems when they exceed certain limit.

The first group (toxic chemical ):

Example :" heavy metals "

* Lead
* Mercury
* Arsenic
* Nitrate
* Different type of insecticide
* ….. etc.

**Lead :**

From where we can exposed to lead in water?(sources of lead in water)

1. Base paint it may contain lead (دهان الاساس )not final paint .

2) Industry waste can contain lead like :( liquid battery)

3) All water plumb may contain lead (why we use lead instead iron? because doesn’t rust as iron.

4) Leaded gasoline (low uses in Jordan)

Why we have lead in gasoline?? " not contamination it use to be added "

To regulate the burning inside the car .

That’s why if you want remove lead from gasoline you should replacement with something else.

5) Some type of pesticides contains lead.

6) Water fountains from where we drink sometime they use lead as material to fix (welding) so some of these lead reach to water.

7) Water container might be containing lead , " as solidifying agent "

So what you see here, we have different sources of lead in water what make possible to receive water with lead. (These are the major lead sources in water) ... However in medeterian area we have other source not major but for children exposed to which make it more covertant ..

Sources of lead (in general ) ( that make them worse ) :

1) Using or grinding wheat in old mills some of these mills it’s an old technique used in rural area. Its two huge stones above each other and the upper stone it has to fix an arm (wood arm) to move upper stone .we have to put certain lead around the piece of wood to make really will fixed inside. Because when put a piece of wood inside the opening in the rock it will be some opening around it to fix it we melt lead and put it around it , Major accidents : In Nablus ❤ , Cairo !

\*\*So may take lead after eating bread prepped in this way

2) Cans food may contain lead.(lead solder)

3) Using Arabic kohl (الكحل العربي) and these are kind of customs and traditions (using kohl in newborn’s eye) or fixed of umbilical cord. Or put it on injury to improve healing as (traditional treatment)

In our area more exposure to lead than other places .after study that comparing with other countries discover that some children have high toxicity of lead by measure blood lead level from the sample due to :

* Eat bread from old technique
* Use Arabic kohl in new born
* Use lead for healing purposes

4)some people have habit to eat on newspapers , before that was a sources of lead because old technique of pressing use lead but now we have new technique of pressing without lead .

It’s seems that at certain time somebody creative and manufacture glass (beautiful glass made up of lead ) to use it for wine and it seems that when put this alcohol inside the glass it will dissolve a lot amount of lead then drink this lead .and he said that why people start to die quickly and make high risk effect how did improve this theory ? " by measure the consternation of lead "

Who have high risk? Children

 (why is it dangerous for them)?

It will reach to the brain to affect on level of intelligence then will become low IQ , and there is one study discover relationship between high level of lead and low IQ . We have some children called " bycarites" where he start to block the wall and eat some part of paint and this give certain amount of lead , continue child expose will affect the nervous system and the symptom ( block foot) that would damage the peripheral nerve " not only the central" , it may also have abdominal pain , constipation... etc So the area discover this situation the better .

\*\*\* weapon : You may died from the injury rather than lead :P , those how manufacture expose to lead !

\*\*\* pencil not made of lead :P .

**Arsenic:**

Now arsenic becoming more and more in water many country start from turkey to Far East and many places they find higher level of arsenic in their water.

One of the major sources of arsenic in water:

 1) Soil" Major" (soil reach the arsenic to water)you know this area faraway area is not easy to give them water from cities so we use wells and these wells are rich with arsenic because (can't hear) and very expensive to treat water from these arsenic , Malaysia area have drink water with high level of arsenic

2) Pesticides (herbicide) might contain arsenic used by the American military as part of its herbicide warfare over Vietnam agriculture land (forests) it’s appearing as morning orange.

 3) Colored glasses sometimes the use green color glasses and sometime when manufactures they use arsenic.

4) if you put arsenic on your hair it will full down but in the same time some type of arsenic compounds are used in certain types of Shampoo to clean the fungus .

Arsenic is very toxic and has been called the (king poison) it’s very toxic and bad. And in the same time arsenic are used as feed additives (اعلاف (for animals (why?) to make those animals gain Weight quickly.

(Napoleon Bonaparte ) it has been suggested that napoleon suffered and died from arsenic poisoning (not killed ) during his imprisonment .forensic samples of his hair did show high level of arsenic.

In Far east in one of Taiwanese area is that people having (high incidence higher than usual of what we called =black foot diseases. (a diseases caused by gangrene due to damaging of blood vessels )

In conclusion: this diseases (black foot diseases )relate

To high level of arsenic.

Scientist in 1982 come up with that ,exposure one time to arsenic increase your Incidence of skin cancer and some of cancer can affect the face . And in other some places can affect conductivity of the heart (abnormal ECG).

Arsenic is a cancerogenic material

If you expose to dermal it cause => skin cancer

If you expose orally it cause =>liver cancer and lung cancer.

\*\*\* But nobody yet show these things on animals models.

**Mercury:( hg)**

We have three forms :

* Organic
* Inorganic
* Metallic

Density of mercury =44.7 kg/m3(very dense metal)

But yet although very dense it can evaporate at room temperature

* You have to learn when you have certain material you have to learn all things about it.
* From where comes to water?
1. One of the sources of mercury is =>any types of measurement of pressure and temp.(thermometer +barometer)

Why we use mercury not water in thermometer ?

1) If we use water we need at least 447m long but if we use mercury we don’t need long container (because of density )

2) Mercury not sticky to walls , that's good .

3) The surface of mercury is easy to see at the top(clear), not as water (has curved surface ).

 2) Battery: mercury as a material to make the current move inside those battery.But children might try to open those battery lead to dangerous on children.

3) Insecticides (fungicide) may contain mercury against fungus .

4) Mercury lamps. (Not widely use nowadays)

6)in detergent industry ( Major ) : ( how )huge room fill it with mercury then put cathode and anode and make a current pass through it and bring salt NaCL (that make cl- go to anode (+) and Na+ go to cathode (-).

The first experience in the world expose to mercury was in Japan (Menimata) small place in Japan it eat fish frequently and some ladies in this area start to complain of having newborn with small head and small body and mental retardation , and even cats living there having the same problem . and become common then took samples in several years to answer what happen and discover that it was the tuna fish in that area was causing this problem because industry throw waste then end to fish then to human begin.