

# **DRINKING WATER COMPOSITION AND INCIDENCE OF URINARY CALCULUS**

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## **SOURCE**

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## **INTRODUCTION**

This is the review of the article “Drinking water composition and Incidence of Urinars calculus.’ It is study for pathophysiology of urinary calculus due to electrolytes in water and whether these electrolytes contribute to water quality besides hardness causing the calculus formation.

## **ARTICLES SUMMARY**

This study was conducted in Iran in its 787 radiology centers bet 2007 & 2008 by equal probability selection method for collecting samples for study the regional drinking water composition was obtained. Water hardness was measured by EDTR test and classified in 5 groups. The incidence of calculus was then estimated.

The relation between regional drinking water and urolithiasis was calculated for each mineral for which stone risk index was used. (SRI= Calcium/mg $\times$ Co<sup>3</sup>) in mgl.

The study showed o significant correlation between hardness of tap water. Inverse relation was shown with magnesium level of tap water & urolithiasis. Stone risk index that is ratio of calcium to magnesium bicarbonate product had positive correlation with calculus incidence potential therapeutic application of SRI.

## **ARTICLE STRUCTURE**

The article is available on pubmed & PDF It was introduced with material, methods, results, discussion conclusion references. The online links included biomed central, PMC, Full text version is free in PDF, version printout PMID: 211 89428. The article has been cited by pubmed ebesco, proquest.

## **ARTICLE CRITIQUE**

### *AUTHORITY*

The Iranian journal of Kidney Diseases is a poor reviewed journal and official publication of Iranian society of Nephrology. It has been published quarterly since 2007 and every 2 months near 2001. The journals objective is to serve as focal point for debates & exchange of knowledge through original papers, case reports, on all aspects of kidney diseases Impact factor: 0.94

Chairman: Ezzatollah Abdi, President, Iranian Society of Nephrology, Tehran, Iran

Editor in Chief: Mohsen Nafar, Secretary General, Iranian society of Nephrology.

Editorial Manager: Behrang Alipour, Iranian Society, of Nephrology.

### *ACCURACY*

Utilizing a multistage stratified sampling 2310 patients were diagnosed in the imaging centers of Iran between 2007 & 2008. These were composed of 1755 patients settled in 24 provinces. The data and their relationship with incidence of calculus was evaluated by met regression models. Stone risk index was used to assess the risk of calculus formation. This brought accuracy in prediction of calculus.

## *CURRENCY*

The paper was accepted by journal in September 2010 and cited in pubmed in Jan. 2011. The data was collected from incidence bet 2007 & 2008 by epsem sampling.

## *REFERENCE*

This study was useful to medical & emergences physicians besides urologists & nephrologists. It will be immense value to preventive medicine healthcare workers, public health workers, sanitation depts. & policy makers.

## *OBJECTIVITY*

The article explores correlation between hardness of tap water and incidence of calculus in there areas but found lack of correlation. Studies did not show extra tendency of stone formation in people living in hardest water areas. The study showed inhibitions effect of Mg & HCO<sub>3</sub> on stone formation. Their study merely suggests a nonlinear correlation & fit model.

## *STABILITY*

The article with its source in internationally acclaimed scientific journal on academic data base. The article was cited in further research papers. The study was endorsed by govt. sector Iranian National water and water waste Engineering company.

## **ANALYSIS OF GRAPHS**

Table I- incidence of calculi in provincial capital of Iran & tap water data.

Figure-1- A nonlinear curve demonstration relationship between incidence of urolithiasis and drinking water Mg

Table 2- Incidence with drinking water Mg composition & stone risk index in the region.

Figure 2- relationship between urolithiasis & stone risk factor

## **RECENT ADVANCES RELATED TO TOPIC**

1. Seirakowski- evaluated 2302 pbs admitted for urolithiasis in USA and found inverse relationship between water hardness and urolithiasis.
2. Churchitt- Discharge diagnosis of 1000 general hospitals in USA from 1940 to 52 and found positive relation between water hardness & urinary calculus.
3. Shuster- Similar study of 2295 pts of USA. Inverse Relationship.

4. Barkers Desinam- United kingdom, positive correlation will hardness and upper urinary calculus.
5. Koshri Et al- 85 cities in Japan Mg/Ca ratio or tap water was Negatively correlated with urinary calculus

## **CONCLUSION**

- No significant relationship found between water minerals & urinary calculus.
- Mg content had marginally inverse relation
- Ratio of calcium to Mg.HCO<sub>3</sub> product was found to have strong Positive correlation

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