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Data Article

Data on copper level in the blood of patients with normal and abnormal angiography

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ABSTRACT

In this data article, we measured the levels of copper in the blood of patients undergoing coronary angiography. The samples were taken from patients with cardiovascular disease in Bushehr's university hospital, Iran. Patients were divided in two groups: normal angiography and abnormal angiography. After the chemical digestion of samples, the concentration levels of Cu in both groups were determined by using inductively coupled plasma optical spectrometry (ICP-OES).

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Specifications Table

Subject area	Medicine
More specific subject area	Heart, biochemistry heart
Type of data	Table
How data was acquired	ICP-OES (SPECTRO (Germany), Spectro arcos)
Data format	Preliminary data, analyzed
Experimental factors	The samples were from patients with cardiovascular disease, with normal and abnormal angiography. After sampling, the blood serum was isolated by centrifugation. Then they were stored at -80°C until final analysis
Experimental features	Determine the level of copper concentration level in blood samples of patients with cardiovascular disease
Data source location	Bushehr, Iran
Data accessibility	Data is with this article.

Value of the data

- The data can be used in other studies to determine trace elements in the blood.
- The data can be used to evaluate the effect of trace elements on heart function.
- The data can be used for further studies on the trace element effects on other human organs as well as the possible role of trace elements in preventing diseases.

1. Data

We measured concentration levels of Cu in blood samples from patients with cardiovascular disease. General data on patients involved in present study is shown in Table 1. The concentration levels of Cu in patients with normal angiography were in the range of 24.01–135.76 $\mu\text{g}/\text{dL}$ with a mean concentration level of 54.14 $\mu\text{g}/\text{dL}$. The concentration levels of Cu in patients with abnormal angiography were in the range of 33.6–221.3 $\mu\text{g}/\text{dL}$ with a mean concentration level of 60.9 $\mu\text{g}/\text{dL}$ (Table 2). Chi-Square analysis also showed that between all characteristics shown in Table 1, only age had statistically significant relationship with angiography type ($p\text{-value}=0.033$).

2. Experimental design, materials and methods

Blood samples were taken from a total of 120 patients, including the patients with normal angiography ($N=60$) and patients with abnormal angiography ($N=60$). These individuals were randomly selected from cardiovascular patients undergoing coronary angiography, at university heart hospital of Bushehr. ECG, echo and angiography were performed for both groups. These who had normal ECG, echo and normal angiography, were placed in the control group, and so people with ECG, echo and abnormal angiogram were classified in the category of abnormal. After sampling, the blood serum was isolated by centrifuge. Then they were stored at -80°C until final analysis. For digestion of samples, 2.5 ml of serum sample was mixed with 2 ml of HNO_3 and 1 ml of H_2O_2 . The resulting mixture was placed in an oven for 2 h at 50°C . After that, 1 ml of concentrated nitric acid and a few drops of H_2O_2 were added to the solution. Then solution was placed on a hot plate, until clear solution was obtained. The resulting clear solution was cooled down at room temperature and 5 ml HNO_3 0.1 N, was added and a volume of 50 ml from sample was prepared by using deionized water [1]. After chemical digestion and preparation, the samples were read by using ICP-OES [2–5].

Table 1

General characteristics of patients with both normal angiography and abnormal angiography.

General characteristics of patients		Angiography	
		Normal	Abnormal
Gender	Male	50.7%	49.3%
	Female	49.0%	51.0%
Age group	< 40 year	87.5%	12.5%
	41–54 year	56.0%	44.0%
	55–64 year	50.9%	49.1%
	65–74 year	28.6%	71.4%
BMI	> 75 year	20.0%	80.0%
	Normal	45.2%	54.8%
	Overweight	52.5%	47.5%
Mitral regurgitation	Obese	50.0%	50.0%
	Positive	43.7%	56.3%
Family history of heart disease	Negative	63.9%	36.1
	Yes	48.1%	51.9%
Duration of having heart disease	No	53.8%	46.2%
	x < 1 year	51.8%	48.2%
	1–5 year	50.0%	50.0%
Hypertension	5–10 year	0.0%	100.0%
	No	35.9%	64.1%
	Yes	57.7%	42.3%
Diabetes	Yes	38.5%	61.5%
	No	52.7%	47.3%
Smoking	Yes	59.2%	40.8%
	No	44.1%	55.9%

Table 2Mean, maximum and minimum concentration level ($\mu\text{g}/\text{dL}$) of Cu in patient with normal angiography and abnormal angiography.

Cu level in blood samples	Normal angiography	Abnormal angiography
Number	60	60
Minimum	24.01	33.6
Maximum	135.76	221.3
Mean	54.14	60.9
Sig.	0.096	0.096

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Transparency document. Supplementary material

Transparency data associated with this article can be found in the online version at <http://dx.doi.org/10.1016/j.dib.2016.08.021>.

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