

RIZICI PREKOMJERNOG I NEDOVOLJNOG UNOSA JODA SA HRANOM

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Sažetak

Uvod: Povijesno, nedostatak joda je bio vrlo čest u prehrani ljudi pa je takođe bila česta pojava rizika od bolesti koje su se javljale zbog njegovog nedostatka. Prema količini u Zemljinoj kori (oko 0,5 ppm), jod je vrlo rijedak element što je uzrokovalo njegov manjk u flori i fauni pa time i u prehrani. Danas je najvažniji izvor joda u prehrani jodirana sol. Za jodiranje se uglavnom koriste kalijum-jodid (KI) i kalijum-jodat (KIO₃).

Preporučena količina soli za odrasle osobe je 4 do 6 g. S tom količinom soli unose se i preporučene količine joda. Israživanje današnjih prehrambenih navika stanovništva razvijenih zemalja pokazuje da se soli unosi 2 do 3 puta više, a time i joda.

Cilj rada: U radu su prikupljeni i sistematizirani podaci o unosu joda putem soli i drugih vrsta hrane te rizicima njegovog prekomjernog i nedovoljnog unosa.

Rezultati: Svjetska zdravstvena organizacija je 1990-ih godina usvojila univerzalni postupak jodiranja soli u cilju eliminaciju njegovog nedostatka u prehrani. Preporučeni dnevni unos joda je od 100 do 200 mcg za odrasle, za djecu do 6 godina 90 mcg, djecu od 7 - 12 godina 120 mcg, a tokom trudnoće i dojenja preporučuje se do 250 mcg joda. S druge strane tokom kuhanja i pripreme hrane, mogu da se gube određene količine joda.

Osim u soli jod se prirodno nalazi u morskoj vodi, morskim algama, školjkašima, rakovima i škampima, bakalaru i tuni te u jajetu i puretini. Ukoliko je prisutan u zemljištu jod se može naći u malim količinama u povrću i nekim vrstama voća.

Hrana može sadržavati takozvane goitrogene tvari koje sprečavaju da jod obavlja svoje metaboličke funkcije. Takvi sastojci se nalaze u kupusnjačama: kelju, brokuli i cvjetači. Ove supstance mogu ometati funkciju štitaste žlijezde na različite načine. Neka jedinjenja indukuju antitijela da reaguju sa štitastom žlijezdom, drugi ometaju enzim štitne žlijezde, koji je odgovoran za dodavanje joda tokom biosinteze tireoidnih hormona itd. goitrogeni su zastupljeni u hrani koja sadrži: gluten, soju i izotiocijanate.

Populacijske grupe podložne jodnom deficitu su: osobe koji ne koriste jodiranu so, trudnice, osobe koji žive u područjima s jodom-deficitarnim zemljištem, osobe koje konzumiraju hranu sa goitrogenim jedinjenjima itd. Simptomi nedostatka joda u organizmu su: usporena moždana aktivnost, usporen metabolizam, pad imuniteta, emotivna uznemirenost i anksioznost, ciste, bol i u grudima, ugrožene funkcije pojedinih oragana i nepravilan rad štitne žlijezde.

Pretjeran unos namirnica bogatih jodom također može negativno uticati na organizam i dovesti do posljednjeg uvećanja štitne žlijezde sa smanjenjem njene funkcije, upale i raka štitnjače. Moguće su i interakcije joda sa pojedinim lijekovima koje se uzimaju. Uzimanje joda kao dodatka prehrani može izazvati interakciju sa anti-tireoidnim lijekovi, kao što su methimazole koji se koriste za liječenje hipertireoze. Uzimanje visokih doza joda s anti-tireoidnim lijekovima može dovesti da tijelo proizvodi premalo hormona štitnjače.

Zaključak: Jod je element kojeg je potrebno svakodnevno unositi u organizam, a prekomjerni i nedovoljni unos nosi određene rizike. Iako su uloženi veliki naponi međunarodne zajednice da se riješi problem unosa joda, jodiranje soli i unos joda jos uvijek su nedovoljno istraženi. U posljednje vrijeme sve su češće bolesti poeremećaja rada štitne žlijezde, a jod kao mikroelement ima značajnog utjecaja na njeno pravilno funkcioniranje.

Ključne riječi: rizici, unos joda.

RISKS OF EXCESSIVE AND INSUFFICIENT INTAKE IODINE WITH FOOD

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Abstract

Introduction: Historically, iodine deficiency was very common in human nutrition and is also a common risk of the disease which occurred due to the lack thereof. According to the amount of the Earth's crust (about 0.5 ppm) iodine is a very rare element which caused its missing the flora and fauna and consequently the diet. Today is the most important source of iodine in the diet of iodized salt. For iodination is generally used potassium iodide (KI) and potassium iodate (KIO₃).

The preferred amount of salt for adults is 4 to 6 g. From the amount of salt is used to record the recommended amount of iodine. Today's exploration dietary habits the population of developed countries show that the salt intake is through 2 to 3 times higher and thereby iodine.

Aim: The paper presents collected and systematized data on iodine intake through salt and other foods and risk of its excessive and insufficient intake.

Results: The World Health Organization in the 1990s adopted a universal procedure iodination of salt in order to elimination of its lack in the diet. The recommended daily intake of iodine is 100-200 mcg for adults, for children up to 6 years 90 mcg, children 7-12 years 120 mcg, and during pregnancy and breastfeeding is recommended up to 250 mcg of iodine. On the other hand during cooking and food preparation, can lose a certain amount of iodine.

In addition to salt iodine is found naturally in seawater, seaweed, shellfish, crabs and shrimp, cod and tuna, as well as in the egg and turkey. If the iodine is present in the soil can be found in small amounts in some vegetables and fruits. Food may contain so-called goitrogens substances that disrupt iodine to perform its metabolic functions. These ingredients are found in brassicas: kale, broccoli and cauliflower. These substances may interfere with the function of the thyroid gland in different ways. Some compounds induce antibodies that react with the thyroid gland, jamming enzyme thyroid gland, which is responsible for adding iodine during the biosynthesis of thyroid hormones, etc. Goitrogens are present in food comprising: gluten, soy and isothiocyanates.

Population groups susceptible to iodine deficiency are: people who do not use iodized salt, pregnant women, people who live in areas with iodine-deficient soil, people who consume foods with goitrogens compounds and so on. The symptoms of iodine deficiency in the body are: slow brain activity, slowed metabolism, low immunity, emotional distress and anxiety, cysts, pain in the chest, endangered individual functions of organs and irregular thyroid gland.

Excessive intake of foods rich in iodine can also have a negative impact on the body and lead to a consequent magnification of the thyroid gland with the reduction of its functions, inflammation and thyroid cancer. There may also be interaction of iodine with certain drugs that are taken. Taking iodine as a dietary supplement can cause interactions with anti-thyroid drugs, such as methimazole used to treat hyperthyroidism. Taking high doses of iodine with anti-thyroid drugs can lead to the body produces too little thyroid hormone.

Conclusion: Iodine is an element that needs to be taken daily in the body, but excessive and insufficient intake carries certain risks. Although great efforts were made to the international community to solve the problem of iodine, iodination of salt and iodine are still insufficiently explored. Lately, there have been more frequent disease disorders of the thyroid gland and iodine as a trace element has a significant impact on its proper functioning.

Keywords: risks, iodine intake.