Komparacija različitih tipova kancera debelog creva primenom Opto-magnetne imidžing spektroskopije

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U svetu, karcinom debelog creva zauzima drugo mesto i podjednako je zastupljen i kod žena i kod muškaraca. Histološki, najčešći tip karcinoma debelog creva je adenokarcinom (90%) sa lokalizacijom u rektumu i sigmoidnom kolonu (75%), zatim u cekumu i ascendentnom kolonu (16%). Približno jedan milion ljudi oboli od ovog tipa karcinoma godišnje, a polovina umre [1]. Preostalih 10% karcinoma čine drugi histološki tipovi karcinoma debelog creva kao što su karcinoid, anaplastični karcinom, skvamocelularni karcinom i drugi, ali takođe spadaju i različiti tipovi limfoma i melanoma.

Brojne optičke metode su se koristile za diferencijaciju karcinoma debelog creva sa različitim uspehom. Metoda Opto-magnetne imidžing spektroskopije je nakon uspešnog dokazivanja prisustva vodoničnih veza u vodi [2] i karakterizacije epidermalnih slojeva kože [3], upotrebljena kao nov metod za diferencijaciju tipova karcinoma debelog creva.

Istarživanja su uključila 60 pacijenata sa histološki potvrđenim adenokarcinomom i dva pacijenta sa histološki potvrđenim drugim tipom karcinoma (MALT limfom i melanom). Digitalna oslikavanja karcinoma debelog creva su izvršena osvetljavanjem uzoraka belom i reflektovanom polarizovanom svetlošću. Postupak je ponavljan 10 puta i slike su obrađene algoritmom spektralne konvolucije po OMIS metodi [4]. Pokazalo se da se rezultati pacijenata sa adenokarcinomom se drastično razlikuju od pacijenata sa MALT limfomom i melanomom, kao i to da se rezultati pacijenata sa MALT limfomom i melanomom međusobno razlikuju.

Ključne reči: kolorektalni karcinom, OMIS, MALT limfom, melanoma

Reference:

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Comparison between different types of colon cancer using Opto-magnetic imaging spectroscopy

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The colon carcinoma is the second most frequent cancer among male and female population around the world. According to the histological data, the most frequent colon carcinoma is adenocarcinoma (90 %) with rectal and sigmoidal localization (75 %), followed by ceccum and ascendant colon (16 %). Approximately, one million people annually suffer from this carcinoma and half of them die [1]. Remaining 10 % of cases include other histological types of colon carcinoma such as carcinoid, anaplastic carcinoma, and squamous carcinoma as well as different types of lymphomas and melanomas.

A number of optical techniques are used for detection and differentiation of colon carcinomas with different success. The opto-magnetic imaging spectroscopy (OMIS) is a novel method, which was successfully applied for differentiation of various types of colon carcinomas after its noticeable application in detection of hydrogen bounds in water [2] and characterization of epidermal skin layers [3].

Investigations have included 60 patients with histologically confirmed adenocarcinoma and 2 patients with other colon cancers (one with MALT lymphoma and the other with metastasis of melanoma). Digital images of healthy mucous and tumor infected

tissues were taken under the white light and reflected polarized light, ten times each, and were processed with spectral convolution algorithm according to the OMIS method [4]. It was shown that the OMIS findings of adenocarcinoma patients significantly differ from findings of MALT lymphoma and melanoma patients. Different OMIS results were also obtained for MALT lymphoma and melanoma patients.

Key word: colorectal carcinoma, OMIS, MALT lymphoma, melanoma

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