

MEETING ABSTRACT

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Effects of radioiodine administration on serum concentrations of matrix metalloproteinases, adiponectin and thrombospondin

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From 4th Congress of the Polish Thyroid Association 2013
Lodz, Poland. 11-13 April 2013

Introduction

In order to assess long-term safety of radioactive iodine administration in treatment of thyrotoxicosis, we assessed concentrations of selected markers of risk cardiovascular disease, i.e. matrix metalloproteinase 2 (MMP-2), its main inhibitor TIMP-2, matrix metalloproteinase 9 (MMP-9), its main inhibitor TIMP-1, as well concentrations of anti-inflammatory adiponectin and pro-inflammatory thrombospondin.

Material and methods

The study involved 23 patients (3 males) age 53 ± 12 (mean \pm SD) years treated with radioiodine for thyrotoxicosis. Serum concentrations TSH, fT4, fT3, MMP-2, MMP-9, TIMP-1, TIMP-2, adiponectin and thrombospondin were measured just before radioiodine administration (visit 1), and subsequently, after 7 days (visit 2), 3 months (visit 3), six to eight months (visit 4) and 15-18 months after radioiodine administration (visit 5).

Results

There were no acute changes in serum concentrations of MMP-2, MMP-9, TIMP-1 and TIMP-2 adiponectin and thrombospondin (visit 1 versus visit 2). Subsequently, however, there was no change in serum MMP-9 or thrombospondin, but an increase in MMP-2 (from 393 ± 106 ng/ml, to 774 ± 424 ng/ml), TIMP-1 (from 177 ± 76 ng/ml to 296 ± 118 ng/ml), TIMP-2 (from 136 ± 44 ng/ml to 168 ± 41 ng/ml), and adiponectin (from 16442 ± 9490 ng/ml to 23518 ± 9840 ng/ml), visit 1 to visit 5 respectively, $p < 0.01$). Further analysis, however,

revealed no significant change in MMP-2/TIMP-2 ratio, but there was a significant decrease in MMP-9/TIMP-1 ratio ($p < 0.05$), suggestive of possible decrease in concentrations of free MMP-9.

Conclusions

Our data reveal a significant and sustained increase in serum adiponectin as well as possible decrease of concentration of free MMP-9 after radioiodine administration. This might indicate overall safety of radioiodine treatment of thyrotoxicosis in terms of the risks of cardiovascular disease.

Acknowledgements

The study was financed from the grant of the Polish Ministry of Science and Higher Education, number NN402 476637 (Medical University of Lodz internal grant number: 507-11-384).

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Published: 5 April 2013

doi:10.1186/1756-6614-6-S2-A40

Cite this article as: Lewiński *et al.*: Effects of radioiodine administration on serum concentrations of matrix metalloproteinases, adiponectin and thrombospondin. *Thyroid Research* 2013 **6**(Suppl 2):A40.

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