and PET-CT results, with AVS lateralizing to right, and PET-CT to left. This patient was classified as bilateral PA and treated medically.

Conclusion. This is the first study to demonstrate that 11C-Metomidate PET-CT may identify cases of unilateral PA not detected with AVS, using the stringent PASO criteria for post-operative biochemical cure.

Thyroid

THYROID NEOPLASIA AND CANCER

The Anti-Cancer Agent, Homoharringtonine, Induces the Sodium Iodide Symporter (NIS) Gene Expression in Culture Cells from Papillary Thyroid Cancer, as Well as Non-Thyroid Cancers.

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Background: The therapeutic effect of thyroid cancer by radioiodide treatment is dependent on enhancement of *NIS* expression by TSH, especially its much greater magnitude in target tissue(s) compared to other healthy tissues. We preliminarily found that a protein synthesis inhibitor cycloheximide (CHX) markedly enhanced *NIS* mRNA expression, followed by increased iodide uptake, in several cancer cell lines, though CHX is highly toxic for clinical use.

Aims: To evaluate the possibility of clinical application of such a pathway to enhance *NIS* expression, we tried another weak protein synthesis inhibitor, homoharringtonine (HHT), a natural plant alkaloid already utilized as an anti-leukemia agent, in several human cancer cell lines, including thyroid cancer.

Methods: BHP 2-7 papillary thyroid cancer cells, MCF7 breast cancer cells, and MKN gastric cancer cells were treated with HHT and/or a p38 inhibitor, and harvested for quantitative RT-PCR of *NIS*.

Results: HHT significantly induced the *NIS* mRNA expression in all of the cell lines tested, up to 298-fold in BHP cells, 38-fold in MCF7 cells, and 235-fold in MKN cells. Time course experiments indicated a biphasic induction of *NIS* in BHP cells with two peaks at 48 hours and 96 hours, with the EC_{50} of 664 ng/mL and 767 ng/mL, respectively. In contrast, *NIS* induction by HHT was monophasic in MCF7 cells at 24 hours with EC_{50} of 24.6 ng/mL, as well as MKN cells at 96 hours with EC_{50} of 255.7 ng/mL. Roles of p38 MAPK in the *NIS* induction has been reported previously, however, p38 inhibitors, SB239063 (10μM), as well as ML3403 (30μM), did not significantly reduce the *NIS* expression in HHT-treated BHP cells.

Conclusion: These results indicated that HHT has a potential to enhance *NIS* expression in some *NIS*-expressing cancer tissues, including papillary thyroid cancer, although its functionality and efficacy are to be validated. The heterogeneity of response in the *NIS* expression to HHT in three cell lines could be due to differential mechanisms of *NIS* gene regulation in different tissues.

Adipose Tissue, Appetite, and Obesity

OBESITY TREATMENT: GUT HORMONES, DRUG THERAPY, BARIATRIC SURGERY AND DIET

GPR142 Expression Levels Were Correlated with Plasma Ghrelin Levels and Heights in Morbidly Obese Patients

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Recently, aromatic amino acids, especially tryptophan were discovered to be the strongest ligands for GPR142, which was previously known as an orphan GPCR. GPR142 is expressed in the digestive tract and pancreas in mice and human. Previously we found that GPR142 is highly expressed in the ghrelin-producing cell line, MGN3-1 cells, and that tryptophan strongly stimulated ghrelin secretion in vitro.

In this study, we measured the mRNA expression levels of GPR142 in the gastric samples of 6 morbid obese patients undergone laparoscopic sleeve gastrectomy and compared its level with their clinical parameters. GPR142 expression levels were negatively correlated with plasma desacyl ghrelin levels (p=0.011) and positively correlated with heights (p=0.08).

The current results that GPR142 expression levels were correlated with plasma desacyl ghrelin levels may confirm the link between GPR142 signal and regulation of ghrelin secretion demonstrated in our in vitro study. Regarding to the correlation with heights, there are some reports that plasma ghrelin levels were inversely correlated with heights in children[1-3], although, as far as we know, there are no reports demonstrating the relationship between plasma ghrelin levels and heights in adults. Considering that ghrelin strongly stimulates growth hormone secretion, GPR142 signaling may have influence on height through regulating ghrelin-growth hormone axis.

Conclusion

GPR142 mRNA expression levels were negatively and positively correlated with plasma desacyl ghrelin levels and heights in morbid obese adults undergone bariatric surgery. Current results may help understanding the pathophysiological role of GPR142 in the regulation of ghrelin secretion and heights.

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