

Conference Abstracts

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Investigation of the Effect of GLP-1 Receptor Agonists on Metabolic Cancer Imaging

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Abstract

Background

Cancerous lesions often demonstrate increased metabolic activity due to increased vascularity and abnormal cell growth. FDG (fluorodeoxyglucose) PET/CT is an imaging technique which utilizes this physiology to allow physicians to diagnose and monitor metastatic cancer using a glucose analog tagged with a radiopharmaceutical to highlight areas of increased glucose metabolism. While FDG PET/CT is sensitive for metabolically active cancer, other factors may lead to increased metabolic activity. Among these factors are different medications, particularly diabetes medications. For example, insulin is well-known to cause increased muscle uptake which can lead to the obscuration of tumors or simply altered biodistribution which decreases relative uptake in tumors. For this reason, imaging centers provide instructions to patients to pause insulin use before an FDG PET/CT. This study aims to gain deeper insight into the effects of a newer class of diabetes and weight loss drugs, GLP-1 receptor agonists. The use of these medications has increased exponentially, and their effect on the cancer patient population and metabolic cancer imaging is not well known.

Methods

Patients at an academic cancer hospital were interviewed at the time of their FDG PET/CT for use of medications including GLP-1 agonists. Factors that may affect imaging appearance, biodistribution, and standardized uptake value including the specific medication information, time of last dose, amount of time fasting, blood glucose level, and additional medications were compiled. Images were then analyzed for signs of abnormal biodistribution and other potentially related abnormal findings.

Results

This is an ongoing project. Preliminary results show that the majority of patients taking GLP-1 agonists have normal biodistribution. However, markedly abnormal biodistribution is seen in a few patients, with a few potential relevant factors including time of last dose and degree of gastric distension. In addition, patients with abnormal activity at one site have a higher likelihood of abnormal activity at another site.

Conclusion

Preliminary findings suggest that GLP-1 agonists have the potential to affect biodistribution and thus interpretation of diagnostic metabolic imaging with FDG PET/CT, but this is not present for the majority of cases. Conversely, these imaging studies potentially provide a

unique avenue to increase understanding of this new medication's effect on metabolism and potential side effects. As the use of these

medications increases and new formulations are developed, this is an important area of continuing investigation.

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