Development and Validation of an LC-MS/MS Method for Plasma Analysis of the Serotonin Metabolite: 5-Hydroxyindoleacetic acid (5-HIAA)

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Purpose
Serotonin (5-HT) plays a crucial role in regulating several crucial aspects of human life, including mood, appetite, sleep, and the immune system. 5-Hydroxyindoleacetic acid (5-HIAA) is the primary metabolite of serotonin and provides an indirect estimate of serotonin presence in biological fluids. The development and validation of a new method for measuring 5-HIAA in plasma provides a valuable tool for assessing serotonin levels in various clinical settings.

Methods
Samples were collected from a group of individuals using blood collection tubes and processed as per standard procedures. The method was developed and validated using a liquid chromatography-tandem mass spectrometry (LC-MS/MS) platform. The method included sample preparation, chromatographic separation, and mass spectrometric detection.

Results
The method was successfully validated using calibration standards and quality control samples. It demonstrated high accuracy and precision across a wide concentration range. The limits of detection and quantification were determined to be satisfactory for clinical use. The method was found to be robust against common matrix effects and interference from other compounds.

Conclusions
The method was successfully validated and is suitable for use in clinical studies. It provides a reliable tool for assessing serotonin levels in plasma, which is crucial for understanding serotonin-related disorders and their treatment. Further studies are needed to explore the clinical applications of this method.

References