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Rapid high-throughput screening of small molecular drugs

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Mass spectrometry (MS) provides a powerful method for high throughput screening (HTS) small molecular drugs because of its high speed, sensitivity and property of label free. However, there were some limits for traditional MS methods in the application of high-throughput screening. Herein, we developed a simple interface which coupled droplet segmented system to a venturi easy ambient sonic-spray ionization mass spectrometry (V-EASI-MS). It is fabricated by using a single capillary to act as both sampling probe and the emitter, which simplifies the construction, reduces the cost and shortened the sampling time. Samples sucked by venturi effect are segmented to nanoliter plugs by air then the plugs can be detected by MS directly. The new system has been applied to screen angiotensin converting enzyme inhibitors successfully. A house-made desorption electrospray ionization mass spectrometry (DESI-MS) is also established for high-throughput screening system. In addition, we have also synthesized new aggregation induced emission (AIE) compounds to apply as new matrices in the analysis of small molecules by MALDI-TOF-MS as well. The sensitivity of the AIE matrix is high because they decreased the generation of matrix interference.

Understanding the nutrition care needs of patients newly diagnosed with type 2 diabetes: A need for open communication and patient-focused consultations

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Patients who are newly diagnosed with Type 2 Diabetes Mellitus (T2DM) commonly attempt to modify their dietary intake after receiving nutrition care from primary health professionals. Yet, adherence to dietary recommendations is rarely sustained and factors influencing adherence are poorly understood. This presentation will provide an overview of a program of research that explored T2DM patients' experiences of dietary change and their views on how primary health professionals can best support long-term maintenance of dietary change. A purposive sample of 10 individuals recently diagnosed with T2DM participated in three individual semi-structured qualitative telephone interviews: At baseline, then at 3 and 6 months after recruitment. Interview questions were modified from the initial interview in order to investigate emerging findings. A two-step data analysis process occurred through content analysis of individual interviews and meta-synthesis of findings over time. Participants initially made wide ranging attempts to improve dietary behaviours, but most experienced negative emotions from the restraint required to maintain a healthy diet. Participants felt confused by the conflicting advice received from health professionals and other sources such as friends, family, internet and diabetes organizations. Participants frequently reported feeling rushed and not heard in consultations, resulting in limited ongoing engagement with primary health care services. These findings suggest there is opportunity for primary health professionals to enhance the dietary support provided to patients by acknowledging the challenges of sustained improvements in dietary intake, open communication, and investing in patient relationships through more patient-focused consultations.

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