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Impact of pharmacists' interventions on the utilization of guideline-directed medical therapy and clinical outcomes in the heart failure frequent flyer programme Hospital Tengku Ampuan Rahimah Klang

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ABSTRACT

Introduction: Multidisciplinary heart failure clinics are recommended by the current guidelines in reducing admissions and mortality. Pharmacists are trained members in the multidisciplinary clinic to provide medication education and conduct medication reviews to identify pharmaceutical care issues (PCIs). The aim of this study is to determine the impact of pharmacists' interventions by evaluating the utilization of guideline-directed medical therapy (GDMT), improvement of New York Heart Association (NYHA) class, left ventricular ejection fraction (LVEF) and the number of PCIs detected during the one-year follow-up. **Materials and Methods:** This was a cross sectional study involving all patients (n=38) who attended the clinic from October 2017 until September 2021. Baseline GDMT, NYHA class, LVEF were recorded and compared at one year follow-up. Types of interventions were recorded. **Results:** At baseline, use of angiotensin-converting-enzyme-inhibitor plus angiotensin-receptor-blocker, angiotensin-receptor-neprilysin-inhibitor, beta-blockers, mineralocorticoid-receptor-blockers, and sodium glucose co-transporter-2 inhibitors was 50.0%, 2.6%, 79.0%, 55.3% and 2.6% respectively and at one year, it increased to 57.9%, 26.3%, 84.2%, 63.2% and 31.6% respectively. 52.8% of patients had a poor functional class of NYHA III-IV at baseline in which 88.9% of them improved to NYHA I-II after one-year. The mean LVEF was 31.1±13.4% at baseline which then increased to 37.6±12.9% in 76% of the patients. 129 PCIs were detected consisting of inappropriate drug, dose, frequency, drug interactions, and vital sign/laboratory monitoring. **Conclusion:** Pharmacists play an important role in the multidisciplinary clinic as they significantly improved the utilization of GDMT leading to improvement of NYHA class and LVEF.

Keywords: Heart Failure, Pharmaceutical Care Issues Guideline-Directed-Medical-Therapy

P-002

Characterization deep eutectic solvents for optimal transdermal drug delivery

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ABSTRACT

Introduction: The development of a new drug delivery system (DDS) for the delivery of large macromolecules that is minimally invasive have been rising consistently in the past years. As of now, the primary mode delivery of these macromolecules is through the use of injection, which is painful and may lead to a lower compliance rate among patients. **Materials and Methods:** Deep eutectic solvent is a tunable mixture of compounds prepared by simply mixing two or three components at an appropriate molar ratio which then appears as liquid salts with temperature below 100 °C. Recently, due to its non-toxic and high biodegradability in nature DES have gain recognition as a potential permeation enhancer as they are able to increase solubility, permeability and adsorption rate of drugs across the skin. However, the characterization and cytotoxic evaluation of DESs are still limited. **Results:** In this study, Choline chloride (ChCl): Glycerol (Gly)/Ethylene glycol (EG)/Urea (U) (6.63, 7.60 and 6.51 ms/cm) showed higher conductivity and lower viscosity (448, 688 and 32 cP) than choline bicarbonate:geranic acid (CAGE) (1.3 ms/cm) (729cP). On the contrary, the melting point of CAGE is the lowest at -22.26 °C compared to ChCl:Gly/EG/U (-39.94,-34.92, -44.64 °C). Cytotoxic analysis on HaCat cells showed non-detectable IC50 with ChCl:Gly/Urea (4-256 mg/ml) but detected with ChCl:EG at 128-256 mg/ml. Culture media were seen turbid at concentration higher than 16 mg/ml using CAGE nevertheless IC50 were not detected at concentration of 4-16 mg/ml. **Conclusion:** This concludes that DESs could potentially be used as a transdermal enhancer due to its low cytotoxic effect on skin cells.

Keywords: DES, Transdermal, DDS, Drug