



## POSTER PRESENTATIONS

### PITUITARY / NEUROENDOCRINE

#### PP-PN-01

##### **SURVIVAL OF TRANSGENIC MICE WITH PANCREATIC NEUROENDOCRINE TUMORS IS DETERMINED MORE BY HYPOGLYCEMIA SEVERITY THAN METASTATIC BURDEN**

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#### OBJECTIVES

The purpose of this study was to compare the blood glucose and survival profiles of two strains of transgenic mice that develop pancreatic neuroendocrine tumors (PanNETs) with contrasting functionality and metastatic potential.

#### METHODOLOGY

Two strains of RIP1-Tag2 (RT2) transgenic mice that develop spontaneous PanNETs were compared: (1) RT2 mice in the C57BL/6J background (RT2;B6), and (2) hybrid RT2 mice (RT2;ABF1) generated by crossing RT2;B6 males to wild-type A/J females. Blood glucose, survival, and incidence of liver metastasis were compared in the two strains from age 8 to 17 weeks.

#### RESULTS

Blood glucose profiles and survival were similar in C57BL/6J mice and B6;A/J mice that lacked the RT2 transgene and did not develop PanNETs. By comparison, mean blood glucose values in RT2;B6 mice that had largely benign but functional PanNETs were 50% lower (44 mg/dL) over the survey period than in RT2;AB6F1 mice (87.4 mg/dL) that had aggressive but non-functional PanNETs. Importantly, survival of RT2;B6 mice, which had only a 4% incidence of liver metastasis, was significantly less (35%) over 17 weeks than in RT2;AB6F1 mice (84%) that had a 47% incidence of liver metastasis.

#### CONCLUSION

Survival of transgenic mice with PanNETs is determined more by hypoglycemia severity than metastatic burden. PanNET insulin secretion is greater and survival shorter in RT2;B6 mice with rare metastases than in RT2;AB6F1 mice with frequent metastases. Tumor insulin secretion and hypoglycemia limit survival in RT2;B6 mice at an earlier age- more than the impact of liver metastases on increased mortality in RT2;AB6F1 mice.

#### PP-PN-02

##### **CITRAL AMELIORATES ISCHEMIC BRAIN DAMAGE IN STREPTOZOTOCIN INDUCED DIABETES IN RATS THROUGH AUTOPHAGY ACTIVATION**

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#### INTRODUCTION

Focal cerebral ischemia is one of the leading causes of death and disability worldwide, and more than 30% of stroke patients are known to be diabetic. Accumulating evidence indicates that autophagy can contribute to cell death processes under pathological conditions. Citral, a monoterpene found in the essential oil of several plants, such as *Cymbopogon citratus*, has been reported to have antioxidant and anti-inflammatory activity.

The aim of this study was to examine the neuroprotective effects of citral against ischemic stroke in diabetic rats and co-relate its probable effects on autophagy.

#### METHODOLOGY

Streptozotocin (STZ) stimulation-induced diabetic rats were subjected to 1 h ischemia followed by reperfusion. The diabetic rats received different dosages of citral vehicle at baseline and 24 h after the middle cerebral artery occlusion (MCAO). Neurological deficit, lipid profile, blood glucose, and molecular biological tests (expression of PI3K/AKT/mTOR pathway-related proteins) were then performed to demonstrate the neuroprotective effects and mechanism in I/R injured diabetic rat.





## RESULT

The results showed that citral markedly attenuated IL-1 $\beta$ , IL-6, and TNF- $\alpha$  levels. Meanwhile, treatment with citral retained serum GSH levels, led to a lower MDA level and also ameliorated neurologic outcome in rats. Citral treatment significantly decreased serum glucose level, serum TG, TC and LDL. Citral administration dramatically upregulated the expression of p62, and downregulated the level of LC3, beclin-1.

## CONCLUSION

All data reveal that citral could effectively ameliorate cerebral ischemia/reperfusion injury via ameliorating inflammatory response, oxidative stress, and improving autophagy through PI3K/Akt/mTOR signaling pathway in diabetic rats.

## PP-PN-03

### PREVALENCE, CLINICAL PRESENTATION AND TREATMENT OUTCOMES OF ACROMEGALY: A DESCRIPTIVE STUDY FROM THE MALAYSIAN ACROMEGALY REGISTRY

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## OBJECTIVES

The Malaysian Acromegaly Registry aimed to improve utilization of health care resource of this rare disease. Prior analyses were performed between 2013 - 2016, which reported 140 patients from 12 hospitals.

## METHODOLOGY

Demographic, clinical and imaging data of all adult acromegaly patients from 23 public and university hospitals were collected and entered into an online database from September 2020 - April 2021. Disease control was defined by normal age- and gender-specific IGF-1.

## RESULTS

We analysed 247 patients [median age 56 years (44.0-65.5), 50.6% male, 42% Malays, disease duration 7 years(3.8 – 14.0)]. An estimated acromegaly prevalence of 7.6 per million Malaysian population was derived. The more common presentations were acral enlargement (84.6%), prognathism (79.8%) and headache (44.5%). Hypertension (57.5%), diabetes (46.6%) and sleep apnoea (18.2%) were the most frequent co-morbidities. The mean IGF-1 at diagnosis was 711.1  $\pm$  293 ng/ml. Majority had macroadenoma (70.4%) with up to 22.7% having optic chiasm impingement. Out of 195 patients who underwent primary surgery, only 22.1% achieved disease control. A second surgery failed to achieve control in 75%. Two-thirds (65.8%) of the 117 patients who failed the first surgery received somatostatin receptor analogue (SSA) and/or dopamine agonist. Although 43.7% experienced uncontrolled disease after medical therapy, less than one-fifth underwent radiotherapy or radiosurgery during their course of illnesses. Pituitary hormone deficiency occurred in up to 15.4%, with hypocortisolism being most frequent.

## CONCLUSIONS

The low prevalence compared to global figures reflect under-recognition of acromegaly in Malaysia. The high rate of disease persistence after surgery has made SSA second line therapy of choice. The use of radiotherapy in acromegaly was low.