Conclusion: We present the first expert panel consensus on recommendations for standardised baseline patient data collection in obesity management services in Australia. Standardising data collections will minimise variation in clinical assessment and facilitate data pooling for clinical audit, health service planning, as well as future research activities.

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Low copy number of the salivary amylase gene (AMY1) are associated with obesity, dyslipidemia and chronic low-grade inflammation but not insulin sensitivity and secretion

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Low salivary amylase gene (AMY1) copy number variations (CNVs)are associated with low serum amylase concentrations which have been shown to correlate with obesity, metabolic syndrome and predict type 2 diabetes. Recently, AMY1 CNV below 4 has been associated higher risk of obesity. Only one study has shown an association between AMY1 CNV and insulin resistance (HOMA).

We assessed the relationship between AMY1 CNVs and adiposity (body mass index and dual X-ray absorptiometry), fasting and 2 hour glucose (75 g OGTT), insulin sensitivity (hyperinsulinemic euglycemic clamp) and total, first and second phase insulin secretion (intravenous glucose tolerance test), inflammatory markers and adipokines (multiplex assays, Biolegend, CA) in 58 overweight and obese but otherwise healthy individuals (age 31 ± 9 years, BMI 31 ± 4 kg/m^2). Participants were non-smokers and had modest alcohol consumption. The participants were divided into two groups according to a median of 4 AMY1 CNVs.

Individuals with less than 4 AMY1 CNVs had higher BMI (33 ± 4 vs 30 ± 3 kg/m^2, $p = 0.04$), fat mass (41 ± 12 vs 34 ± 8 kg, $p = 0.01$), LDL cholesterol (3.3 ± 0.8 vs 2.8 ± 0.7mmol/l, $p = 0.02$), plasma interleukin 6 (53 ± 56 vs 24 ± 22 pg/ml, $p = 0.02$) and leptin concentrations (0.83 ± 0.56 vs 0.50 ± 0.46 ng/ml, $p = 0.02$) compared to individuals with more than 4 AMY1 CNVs. There was no relationship between AMY1 CNVs and insulin sensitivity, insulin secretion, plasma fasting and 2 hour glucose, high sensitivity C-reactive protein, adiponectin, resistin and adipsin levels (all $p > 0.1$).

Our data indicated that AMY1 CNVs are associated with obesity, dyslipidemia and chronic low-grade inflammation but not glucose metabolism. Further larger studies are needed to confirm whether AMY1 CNVs could be a genetic biomarker for metabolic syndrome and type 2 diabetes.

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Hypothalamic hunger promoting neurons drive life

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Novel circulating biomarkers identify insulin resistance phenotypes in obesity

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Objective: Measurement of insulin resistance may ultimately assist in guiding the most effective therapy in type 2 diabetes (T2D). We aimed to identify circulating biomarkers of muscle and liver insulin resistance in obesity to guide treatment in the clinical setting.

Research design and methods: Metabolomics and lipidomics were combined with a specialized machine-learning algorithm to identify plasma biomarkers that characterize muscle and liver insulin resistance in a cohort of 62 individuals with obesity (BMI range 31â‰“48 kg/m^2) phenotyped using the gold-standard 2-step hyperinsulinaemic-euglycaemic clamp with deuterated glucose to evaluate glucose regulation in muscle and liver.

Results: Comprehensive metabolomic and lipidomic profiling by LC/MS revealed that a total of fourteen circulating metabolites and lipids were closely correlated with muscle insulin resistance (Spearman $rho > 0.2$, $p < 0.05$) while nineteen were associated with hepatic insulin resistance (Spearman $rho > 0.3$, $p < 0.05$). A hybrid learning model that combines clustering-based prototype selection and random forest-based feature analysis identified two triacylglycerols (TAGs) and a phosphatidylcholine (PC) in plasma as the best classifiers differentiating between the liver and muscle insulin resistance phenotypes, followed by select metabolites, clinical features, and biochemical parameters. The three lipids identified by the hybrid learning model far out-performed standard clinical

[9] O'Sullivan and Samocha-Bonet contributed equally to this work.