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modelling. $[Ca^{2+}]_c$ regulators namely smooth endoplasmic reticulum membrane Ca ATPases (PMCA), ryanodine receptors, leak channels and IP_3Rs were modelled.
Results: IP_3 was directly added to the cytosol and the activation of IP_3R increased $[Ca^{2+}]_c$ immediately by 90% within 2s at $[Ca^{2+}]_{ER}$=400μM. When the $[Ca^{2+}]_{ER}$ was decreased, the IP_3 evoked transient peak of $[Ca^{2+}]_c$ decreased non-linearly and reached only 20% increase in 6s for $[Ca^{2+}]_{ER}$=20μM.
Conclusions: According to our results, the increase of the $[Ca^{2+}]_c$ and time to peak response from the addition of IP_3 in PLC pathway depend on the $[Ca^{2+}]_{ER}$. Therefore, we suggest that any study to investigate the cytosolic calcium signalling is necessary to study and report the initial $[Ca^{2+}]_{ER}$ to correctly interpret the experimental observations.
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Glycemic control and inhibitory functions amongst normal, overweight and obese young adults in selected periurban Ministry of Health areas, Colombo District, Sri Lanka

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Background: Several studies have shown that obesity was associated with poor inhibitory functions (IFs) and poor glycemic control among young adults. Further, defects in inhibitory functions are associated with various cognitive and behavioural problems in children and young adults.
Objective: The objective was to assess inhibitory functions and glycemic control among normal, overweight and obese young adults in selected Ministry of Health (MOH) areas of Colombo District, Sri Lanka.
Methods: A descriptive cross sectional study was conducted with 231 young adults aged 21-25 years by using simple random sampling based on electorate register (Rathmalana, Maharagama and Piliyandala). Subjects were recruited after categorizing into normal, overweight and obese using WHO Asian cutoff of BMI values. Glycemic level was estimated via glycated hemoglobin level (HbA1C). IFs were assessed via computerized tasks; stroop task (ST), stop signal task (SST) and go/no-go task (GNG). Mean incorrect responses were taken as the level of inhibition. Significant level was taken as $p<0.05$.
Results: The study sample comprised of 77 young adults in each normal, overweight and obese categories. Gender, socioeconomic status and level of education did not significantly vary among the three groups. There was a significantly higher HbA1C value in the category when compared to normal weight ($t[152] = 8.45$; $p<0.001$). A significantly higher mean incorrect responses in ST and SST were found in overweight and obese subjects when compared to normal weight ($p<0.05$) subjects. There was a significant positive correlation between HbA1C values and BMI ($r=0.177$, $p<0.01$) and between IF task errors and BMI (ST; $r=464$ & SST; $r=211$; $p<0.001$) but correlation between glycemic level and inhibitory functions were not significant.
Conclusion: Young obese adults in the study sample had poor glycemic control and poor inhibitory functions when compared to their normal counterparts. Therefore, obesity prevention is an important health concern to overcome poor glyceamic control and inhibitory functions.
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