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Effect of oral administration of ferulic acid on learning and memory impairment induced by streptozocin-induced diabetes in adult male rats

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Introduction: Diabetes is a common metabolic disease that has different effects on the body. Ferulic acid has a potential anti-oxidant effects and also has anti diabetic effects. The aim of this study was to evaluate the oral administration of ferulic acid on learning and memory impairment induced by diabetes.

Methods: We used STZ to induce diabetes in male Wistar rats. Rats divided randomly into four groups for assement of memory and cognitive functions after 4 weeks by using Morris water maze, Y-maze and shuttle box, and also their brains were removed and investigated for oxidative stress, actyl choline esterase concentration and nissl staining in hippocampus.

Results: Ferulic acid treatment can improve performance in MWM, Y-maze and passive avoidance test. This treatment also decreases oxidative damage and significantly decreases choline esterase activity. Increase in neural density (CA1) in treatment groups measured in 16 weeks after induction of diabetes.

Conclusion: Taken together, our data suggests that Ferulic acid treatment can improve cognitive and learning ability in diabetic rats by reducing oxidative damage, choline esterase activity and increase in neural density in diabetic rats.

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Prevalence of gestational diabetes in some selected slums of Dhaka city

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Gestational Diabetes Mellitus (GDM) refers to any degree of glucose intolerance with onset or first recognition during pregnancy. This descriptive type of cross sectional study was conducted to explore the prevalence of gestational diabetes in some selected slums of Dhaka city with a sample size of 236. It was found in the study that the majority of the participants (65.3%) were in the age group 16-25 years followed by 29.2%, 2.5% and 3% were in age group 26-35 years, <15 years and >35 years respectively with mean age 23.74±5.644 years. Most of the respondents (78%) were Muslim, 16.1% were Hindu and 5.9% were Christian. Among the respondents, 53% had primary education, 12% had SSC, 4% had HSC, 3% had education of graduate & above. But 28% respondents were illiterate. Among the respondents, 79.7% were housewife, 9.7% and 5.9% were engaged in service and business and rest 4.7% was day laborer. 76.3% of the respondents had monthly family income between BDT 5001-15000 and 13.6% had it between BDT 15001-25000, 9.3% had BDT <5000 and only 0.8% had BDT >25000. 49.6% of the respondents used supply water, 41.1% used water from rivers and ponds. Rest of them (9.3%) used boiled water. Among the respondents, 94.5% used sanitary latrine and rest 5.5% kacca latrine. 26.7% respondents had diabetes in family and 14% respondents had previous history of GDM. Among them, 78% had normal delivery but 22% had caesarean section. Study also revealed that of the bad obstetric history 68.2% had miscarriage 6.4% had still birth, 5.1% had preterm baby and 14% had IUD. Study also showed that 4.7% of the respondents had GDM and rest did not. It also found that 20.3% of the respondents had hypertension, 55.1% had anaemia, 19.1% had jaundice, 33.1% had oedema, 40.7% had frequent urination and 14.8% of the respondents had visual problem. There was an association among age and FBG level which was statistically significant with p value < 0.014. As GDM is a medical problem and sometimes threatened the life of the mother and baby. Adequate antenatal care should be given to the pregnant ladies for early identification and controlling the problem to avoid complications. Thereby the huge health expenditure for diabetes can be minimized.

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