Effect of Ketogenic diet on motor function in parkinsonian model of rat and comparison of that with the effect of Pramipexole

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Background The ketogenic diet (KD) is high in fat and low in carbohydrate and protein, providing sufficient protein for growth but insufficient amounts of carbohydrates for all the metabolic needs of the body. It is now almost a century that this diet is known for its therapeutic effect in patients with intractable epilepsy. In the recent years, however, the usefulness of ketogenic diet has attracted attention in treating a couple of other neurologic problems including Parkinson disease. This study sought to examine the effect of KD on motor function in a parkinsonian model of rat and comparison of that with the effect of Pramipexole.

Methods & Materials A total of 56 male Wistar rats weighing 200-240 g at 12-14 weeks of age were randomized in seven 8-rat groups as follows: control, sham-operated, KD, parkinsonian control, KD (for 25 days) parkinsonian, Pramipexole (for 14 days) parkinsonian, and KD plus Pramipexole parkinsonian. The results of bar test, beam traversal task test, and cylinder task test were compared between the groups at the endpoint.

Results The mean number of ketone bodies increased significantly in the blood samples obtained from the KD fed rats. Regarding the results of the triad tests, no significant difference was found between the controls and the sham-operated group. Among the parkinsonian rats, better results were documented in KD groups compared to that in non-KD group. The KD enhanced the effect of Pramipexole in terms of motor function, but this effect did not reach a statistically significant level.

Conclusion The ketogenic diet reinforced the motor function in parkinsonian rats in the present study. When the diet was combined with Pramipexole, the effectiveness of the drug increased in enhancing motor function.
Keywords: *Parkinson's Disease, Pramipexole, Ketogenic Diet, Motor Function*.