Potential Therapeutic Effect of Novel Multivitamins and Minerals Combination for Alzheimer's: In vitro and in vivo Studies

Sobhy, Ahmed

The objective of this study was to re-measure the effect of maximum safe dosages of multi-vitamins and minerals (MVM) on biochemical markers alterations that occurred during Alzheimer's in addition to assess its effect on APP processing gens. our previous work showed that MVM was potent antioxidant and anti-inflammatory and had no toxic effect. In this stage, AD induction was carried out in a new animal model of both genders of rats by using Scopolamine hydro-bromide administration (2mg/ kg, i.p.) for 14 days which decreased their learning ability, increased TBARS, AChE, NO, ß- amyloid and urea levels. In addition, it increased the expression of APP, AChE and BACE-1 gens that combined with reduction of GSH, glucose and albumin level and down regulated the expression of ADAM-10 and ADAM-17 gens in the brain tissue of both genders. MVM administration as protector or curing agent could ameliorate these scopolamine's adverse effects on brain tissue as it increased learning ability and antioxidants parameters and decrease inflammatory markers, prooxidants and plaques formation levels even better than the reference drug (Donepezil). In addition to increasing expression of ADAM-10 and ADAM-17 gens and lowering expression of AChE, APP and BACE-1 gens in brain tissue. Altogether, MVM administration had no toxicity and also was effective as curing or prevention drug for AD because it has multi-therapeutic targets related to AD as it acts as AChE inhibitor, antioxidant, anti-inflammatory, reducing ß-amyloid plaques formation, lowering (BACE-1, APP, AChE) gens expression and increasing expression of (ADAM-10&ADAM-17) gens in the brain tissue.

Awards Won: