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Role of genetic and caloric restriction in clinical trial

Statement of the Problem: Genetic may play a pivotal role in longevity and Caloric Restriction (CR). Some diseases are caused by genetic defect and manipulating the genetic defect by gene therapy is the best treatment for that conditions and diseases. Gene mutation (mutant) can be solved out the gene that can prolong lifespan by doing research in *Caenorhabditis elegans* (*C. elegans*) because its genome was well sequenced and similar to human genome. It becomes model organism in our laboratory because of difficulties to explore long lifespan gene in human directly and less expense compared to other research organisms.

Methodology & Theoretical Orientation: In our study, we used *C. elegans* Wild Type (WT), long lifespan mutants *daf-2* (*e1370*), *age-1* (*hx546*), and short lifespan mutants *daf-16* (*mu86* and *mgDf50*) fed with alive *E. coli* (109,108 and 107cfu/ml) to explore the effect of caloric restriction in the insulin-insulin like growth factor signaling pathway (ILS). Lifespan of *C. elegans* was monitored by using liquid culture medium in 96 well plates. 100 worms for each group were cultured in synthetic complete media containing ampicillin (50 µg/ml) and amphotericin B (0.1 µg/ml). We used 50 µg/ml 5-fluoro-2'-deoxyuridine (5-FUdR) in well to prevent hatching. All experiments were performed at 20 °C for 2 times.

Conclusion & Significance: There was significant increase in lifespan of WT and *age-1* mutant *C. elegans*, but lesser increase in *daf-2* and *daf-16* mutants when fed with alive *E. coli* (108 and 107 cfu/ml) compared to that group fed with alive *E. coli* (109 cfu/ml). In conclusion, CR and ILS signaling pathways do not overlap fully. From our study, further research on gene functions under CR conditions and screening variety of drugs useful for aging in human.

Biography

Myat Thu Thu Win has completed her Graduation in 2001 and Master of Medical Science (Pharmacology) in 2005 from Institute of Medicine I, Yangon. She got Japanese government (MEXT) scholarship from 2009-2013. She has completed her PhD in 2013 from Kanazawa University Graduate School of Medical Science and postdoctoral fellow in the same department for 3 months. She had more than 8 years of teaching and clinical experience as well as 6 years of research experience. She has published research and review papers. She is now doing as a senior lecturer Pharmacologist in the Faculty of Medicine, Asian Institute of Medicine Science and Technology (AIMST) University.

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