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***Eurycoma longifolia* Jack (Tongkat Ali): A possible alternative treatment for benign prostate hyperplasia?**

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INTRODUCTION:

Eurycoma longifolia Jack (Tongkat Ali; TA) is a medicinal plant commonly used by the people in South East Asian countries i.e. Malaysia. TA has shown to exhibit selective anti-cancer properties with TM3-Leydig cells and LNCaP-prostate cancer cells. In addition, numerous investigations have reported testosterone boosting effects. The increase in testosterone levels may with further investigation provide relieve for aging male symptoms as well as benign prostate hyperplasia (BPH), which affects about 70% of men older than 60 years.

AIM:

As Tongkat Ali is generally used as a well-being tonic within the Malaysian population, the implication that TA may be unsafe to the aging male, it is therefore imperative that TA be thoroughly investigated in regards to its effects on the prostate.

MATERIALS AND METHODS:

For this study, PWR-1E cells were used as a model for BPH. TA concentrations of (0.4, 0.8, 1.6, 3.125, 6.25, 12.5, 25, 50µg/ml) and control (without extract) for 48 and 96 hours. In a second set of treatments, the TA concentrations were combined with different dosages of testosterone as a stimulant (1nM, 10nM, 100nM and 1000nM) at the same time period. The cell's viability, relative prostate specific antigen (PSA) concentration and caspase 3/7 activity and DNA fragmentation were evaluated.

RESULTS:

Preliminary results have shown for all testosterone concentrations cell viability that the maximum effectiveness of TA can be seen at TA concentrations between 0.8 and 3.125 µg TA/ml. Caspase activity declined to an average of 60-70% at the highest concentration of TA used, particularly for those series of experiments where the medium was supplemented with 10nM testosterone, which has been shown to be most stimulatory for prostate cancer cells LNCaP. Thus, there is no indication of induction of apoptosis. After 96 hours of incubation, significant cellular stress could be seen for TA at concentrations between 0.8 and 3.125 µg/ml. With regard to the PSA production of these cells statistics reveal a significant increase in PSA production. However, since the effective increase is only 0.0006 pg/ml, no biological significance can be attributed to this.

CONCLUSION/DISCUSSION:

In conclusion, TA appears to have no effect on the benign prostatic hyperplasia in the *in vitro* system, even under the stimulation with testosterone. This means that treatment with TA would not negatively affect growth of a BPH due to increased testosterone production.

Key words Tongkat Ali, benign prostate hyperplasia, aging males, testosterone