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Jurnal Medika Planta, mulai terbit tahun 2010, merupakan jurnal yang berisi artikel mengenai tanaman obat dan obat-obatan yang berasal dari tanaman. Jurnal ini menyajikan hasil penelitian, tinjauan pustaka, dan laporan kasus dalam bidang tanaman obat yang meliputi ilmu pertanian, farmasi, dan ilmu-ilmu dasar kedokteran, serta ilmu terapan / klinik. Jurnal ini terbit setahun dua kali, yaitu pada bulan April dan Oktober.

PRAKATA

Segala puji dan syukur kami panjatkan kepada Tuhan Yang Maha Esa atas petunjuknya sehingga JMP (Jurnal Medika Planta) edisi bulan Oktober 2012 dapat hadir dihadapan kita.

Informasi ilmiah berupa artikel yang terkait dengan pengembangan obat bahan alam, mencakup hasil penelitian meliputi ilmu pertanian, farmasi, kimia dan ilmu-ilmu dasar kedokteran , ilmu terapan / klinik serta pemikiran yang berkaitan dengan program peningkatan kesehatan bagi masyarakat Indonesia khususnya yang berkaitan dengan herbal medik sangatlah diperlukan.

Jurnal Medika Planta (JMP) ini diterbitkan secara berkala dua kali dalam satu tahun oleh Perhimpunan Dokter Herbal Medik Indonesia (PDHMI) didukung oleh Fakultas Kedokteran Universitas Kristen Maranatha. Terbitan kali ini merupakan terbitan keenam dan bertujuan untuk memberikan informasi pengembangan herbal medik bagi para dokter dan tenaga profesi yang berhubungan dengan kesehatan serta pihak yang terkait.

Dewan penyunting berharap jurnal ini akan memberikan manfaat bagi para pembaca dan menjadi sarana komunikasi tenaga kesehatan yang berminat di bidang herbal. Kami sangat mengharapkan partisipasi ilmuwan, herbalist dan pemerhati herbal lainnya untuk dapat menyumbangkan artikel penelitian atau tinjauan pustaka yang terkait dengan obat herbal demi kesinambungan penerbitan jurnal ini diharapkan.

Selamat membaca

Penyunting

Research Article

PROTECTIVE EFFECT OF ETHANOL EXTRACT PURWOCENG TO PHONE ELECTROMAGNETIC WAVE EXPOSURE AS A RISK FACTOR FOR ANDROPAUSE

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ABSTRACT

Introduction: *Andropause is now well accepted that serum testosterone (T) levels decline progressively with aging in men and circumstances related to exposure to free radicals, including exposure from mobile phone. Purwoceng been used by communities for generations to enhance virility.* ***Objective****: to assess protective effect of purwoceng in overcoming the negative impact of the concentration of cell phones from the concentration of spermatozoa.* ***Method:*** *The research method used is true experimental design in laboratorium with completely randomized design. This research used 24 male mice divided into 4 groups (n = 6), namely: Group I as negative control; Group II, mice were given only the phone electromagnetic waves; Group III, mice were given 32 mg / kg Purwoceng extracts; Group IV, mice were given 32 mg / kg Purwoceng extracts and providing mobile phone electromagnetic waves. Parameters which are measured were concentration of spermatozoa. The analysis data by one-way ANOVA and Tukey HSD test with* $\alpha = 0.05$. ***Result:*** *the average concentration of spermatozoa (million/mm3) in group I (3.97), group II (0.37), group III (6.43), and group IV (4.4). Group II and III are significantly different than the control group with* $p < 0.05$*, while the fourth group is not significant compared with the negative control group.****Conclusion:*** *an electromagnetic wave radiation cell phone decrease the sperm concentrations and extracts Purwoceng has protective effect to cell phone electromagnetic waves radiation though spermatozoa concentration parameters. And this study indicates that Purwoceng has a positive effect in reducing the symptoms of andropause.*

Keyword: *Purwoceng, cell phone electromagnetic wave, sperm, andropause.*

Already presented at The National Symposium and Workshop on Anti-Aging Medicine (NASWAAM) Denpasar Bali, March 22nd-24th, 2013

Research Article

EFEK PROTEKTIF EKSTRAK ETANOL PURWOCENG TERHADAP PAPARAN GELOMBANG ELKTROMAGNETIK PONSEL SEBAGAI SALAH SATU FAKTOR RISIKO ANDROPAUSE

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ABSTRAK

Pendahuluan: *Andropause terjadi berhubungan dengan berkurangnya kadar testosteron (T) yang terjadi secara progresif pada pria yang mengalami aging dan sebagai akibat paparan radikal bebas, termasuk radikal bebas yang dihasilkan oleh ponsel. Purwoceng telah digunakan masyarakat dari generasi ke genarasi untuk meningkatkan stamina.* ***Tujuan:*** *untuk menilai efek protektif ekstrak etanol purwoceng terhadap paparan gelombang elektromagnetik ponsel dengan parameter konsentrasi spermatozoa.* ***Metode****: Penelitian ini merupakan eksperimental sungguhan di laboratorium dengan rancangan acak lengkap yang mengunakaun 24 mencit yang dibagi menjadi 4 kelompok (n=6) yaitu: kelompok I sebagai kontrol negatif; Kelompok II, mencit yang hanya diberi gelombang elektromagnetik ponsel Kelompok III,mencit yang diberi 32 mg / kg Ekstrak Etanol Purwoceng; Kelompok IV, mencit yang diberi 32 mg / kg Ekstrak Etanol Purwoceng dan paparan gelombang elektromagnetik ponsel. Parameter yang diukur adalah konsentrasi spermatozoa. Analisis data menggunakan ANOVA satu arah dan Tukey HSD dengan* $\alpha = 0.05$. ***Hasil*** *: Rerata konsentrasi spermatozoa (juta/mm3) pada kelompok I (3.97), kelompok II (0.37), kelompok III (6.43), dan kelompok IV (4.4). Kelompok II dan III berbeda bernamakna dengan kelompok kontrol negatif dan kelompok IV dengan* $p < 0.05$*, sedangkan kelompok IV tidak berbeda bermakna dengan kontrol negatif.* ***Simpulan****:Gelombang elketromagnetik ponsel menurunkan konsentrasi spermatozoa dan Ekstrak Etanol Purwoceng mempunyai efek protektif terhadap paparan gelombang elektromagnetik ponsel dengan parameter konsentrasi spermatozoa, dan penelitian ini mengindikasikan bahwa Purwoceng memiliki efek positif dalam mengurangi gejala andrpause.*

Kata kunci: *Purwoceng, gelombang elektromagnetik ponsel, spermatozoa, andropause*

INTRODUCTION

Getting older comes with its drawbacks; loss of energy, erectile dysfunction, lower sex drive, and mood changes. These symptoms have always been considered nothing more than the natural changes that come with age. Recent studies show that these symptoms may not be such an organic part of our lifecycle; instead they seem to be the side effects of a condition known as "andropause."[1]

Andropause is a term also used commonly by experts in the field and by lay persons because it retains some analogy to menopause in women. Andropause has also been referred to by some as "androgen deficiency in the aging male (ADAM)," "partial androgen deficiency in the aging male (PADAM)," or "aging-associated androgen deficiency (AAAD)."[1]

Research Article

Andropause is now well accepted that serum testosterone (T) levels decline progressively with aging in men. [1] *Multiple defects have been identified in the steroidogenic pathway of old Leydig cells, including reductions in each of LH-stimulated cAMP production, the cholesterol transport proteins steroidogenic acute regulatory protein (StAR) and peripheral benzodiazepine receptor (also referred to as translocator protein), and downstream steroidogenic enzymes of the mitochondria and smooth endoplasmic reticulum. Although the mechanism(s) by which age-related defects in the Leydig cell steroidogenic pathway occur remains uncertain, there is correlative evidence that changes in the oxidant/antioxidant status of the cells is involved. Thus, the antioxidant defense molecules superoxide dismutase-1 and -2, glutathione peroxidase, and glutathione (GSH) are significantly reduced as Leydig cells age.*[2]

The reduction of antioxidant defense molecules are due to free radical exposure. The tremendous development and use of mobile telecommunication services in the last decade has drastically increased the amount of radiofrequency electromagnetic wave (RFEMW) exposure in our daily lives. As the use of cell phones has increased, so have concerns regarding the harmful effects of cell phone exposure on human health. As part of its charter to protect public health, the World Health Organization (WHO) established the International EMF Project in 1996 to assess the scientific evidence of possible health effects of electromagnetic frequencies in the range of 30 Hz to 300 GHz. The hypothesis of mechanism the harmful effects of cell phone exposure on human health is cell phone radiation (talk mode) disturbs free radical metabolism in human by increasing free radical formation, by decreasing antioxidants, or by both mechanisms.[3] *The negative impact of free radicals in addition to effect on testosterone levels, also affects the number of sperm.*

Recent epidemiologic (cross-sectional or prospective) studies have highlighted the role of cell phone exposure on sperm motility, morphology, and viability, suggesting a reduction in male fertilization potential. Purwoceng been used by communities for generations to enhance virility. The objective of this study was to assess protective effect of purwoceng in overcoming the negative impact of the concentration of cell phones from the concentration of spermatozoa.

METHOD

The research method used is true experimental design in laboratorium with completely randomized design.

Research Article

This sudy used test material Purwoceng Herbs. The taxonomy of Purwoceng herb is divisio: Spermatophyta; Subdivisio: Angiospermae; Classis: Dicotyledoneae; Family: Umbelliflorae; Ordo: Umbelliferae; Genus: Pimpinella; Spesies: Pimpinella alpina

Figure 1. Purwoceng

This research used 24 male mice divided into 4 groups (n = 6), namely:

Group I as negative control;

Group II, mice were given only the phone electromagnetic waves;

Group III, mice were given 32 mg / kg Purwoceng extracts;

Group IV, mice were given 32 mg / kg Purwoceng extracts and providing mobile phone electromagnetic waves.

Purwoceng ethanol extract administered for 7 days. Induction electromagnetic waves use phonecell given 40 times each for 37 seconds. calculation of the sample using a formulation Sukhatme, which is to determine the value of F can only be counted if the error degree of freedom size 15 or more. (t-1)(r-1) $\geq$ 15. t = treatment (t = 4) ; r = replication (n), and n = 6 is qualified. Parameters which are measured were concentration of spermatozoa. The analysis of the data by one-way ANOVA and followed by Tukey HSD test with $\alpha = 0.05$.

RESULT

Protective effect of ethanol extract purwoceng to the phone electromagnetic waves seen in this study of mice spermatozoid concentration (table 1).

Research Article

Table 1. The sperm concentration in the various groups

Mice	*Negative Control (Aquadest) Million / mm^3*	*Positive Control (RFEMW) Million / mm^3*	*Ethanol extract Purwoceng Million / mm^3*	*Ethanol extract Purwoceng + RFEMW Million / mm^3*
1	*3.0*	*0.0*	*8.0*	*5.2*
2	*4.0*	*0.6*	*7.0*	*4.0*
3	*3.4*	*1.0*	*5.4*	*4.2*
4	*5.8*	*0.0*	*6.0*	*5.0*
5	*3.6*	*0.2*	*6.4*	*3.8*
6	*4.0*	*0.4*	*5.8*	*4.2*
Average	*3.97*	*0.37*	*6.43*	*4.4*

$p < 0,05$

Differences between treatment groups were statistically tested using oneway ANOVA and Tukey HSD. Differences between treatment groups are shown in Table 2

Table 2 Differences between treatment groups

Treatment groups	*Negative Control*	*Positive Control (RFEMW)*	*Ethanol extract Purwoceng*	*Ethanol extract Purwoceng + RFEMW*
Negative Control (Aquadest) (3.97 Million/mm^3)		*	*	*NS*
Positive Control (RFEMW) (0.37 Million/mm^3)			*	*
Ethanol extract Purwoceng (6.43 Million / mm^3)				*
Ethanol extract Purwoceng + RFEMW (4.4 Million / mm^3)				

** : significant ($p < 0.05$)* *NS : Non significant*

DISCUSSION

This research shows there is decrease in the concentration of spermatozoa in the provision of mobile phone electromagnetic waves. Decrease in the concentration of spermatozoa caused by the presence of oxidative stress because of increasing free radicals. Damage to the DNA in the cells that lead to apoptosis in cells that are dividing. Cell damage caused by free radicals is not only the spermatozoa, but also on all cells including testosterone-producing Leydig cells. Radiation also damages blood testis barrier, resulting in nutritional deficiencies and testosterone production.

The treatment group were given Purwoceng ethanol extract showed an increased concentration of spermatozoa in comparison to the negative controls were given distilled water.

Research Article

This is because the content contained in Purwoceng, that particular steroid stigmasterol derivatives that are like testosterone and stimulates spermatogenesis. Purwoceng also contain vitamin E and antioxidant flavonoids that effect that will reduce the negative impact of free radicals.

The treatment group were given ethanol extract Purwoceng and electromagnetic waves showed an increase in sperm concentration compared to the positive control given electromagnetic waves. This suggests a protective effect of ethanol extract Purwoceng to radiation of electromagnetic waves mobile phones. As a result of exposure to radiation of electromagnetic waves will increase ROS which then cause damage to the Sertoli cells and leydig cell that produce testosterone and Purwoceng ethanol extract can reduce the negative impact due to the effect Purwoceng contains antioxidants.

CONCLUSION

The conclusions of this research is an electromagnetic wave radiation cell phone decrease the sperm concentrations and extracts Purwoceng has protective effect to cell phone electromagnetic waves radiation though spermatozoa concentration parameters. And this study indicates that Purwoceng has a positive effect in reducing the symptoms of andropause

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