

Perbedaan indeks apoptosis sel granulosa program Fertilisasi in vitro antara kelompok elektroakupunktur dengan elektroakupunktur Sham = The differences in granulosa cell apoptosis index in vitro fertilization program between electroacupuncture group with Sham electroacupuncture

Nadia Oktari, author

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Abstrak

Prevalensi infertilitas di Indonesia yang meningkat tiap tahunnya juga memperbesar kebutuhan pasangan infertil terhadap program fertilisasi in vitro (FIV). Diketahui oosit mempunyai peranan penting dalam keberhasilan FIV. Namun pada pelaksanaannya, oosit yang didapat saat tindakan petik oosit mempunyai maturitas yang tidak sama. Dari beberapa penelitian didapatkan stimulasi ovarium terkendali (SOT) dapat meningkatkan apoptosis sel granulosa dan *reactive oxygen species* (ROS) yang dapat memberikan efek negatif pada maturasi oosit. Penelitian ini bertujuan untuk mengetahui pengaruh elektroakupunktur terhadap maturasi oosit, laju fertilisasi, kadar GDF9 dan BMP15 pada program FIV. Uji klinis acak tersamar ganda dengan kontrol dilakukan terhadap 24 subjek yang menjalani program FIV. Subjek dialokasikan secara acak ke dalam kelompok elektroakupunktur (n=12), dan kelompok elektroakupunktur *sham* (n=12). Penilaian maturasi oosit dan laju fertilisasi dilakukan secara mikroskopis oleh embriolog, sedangkan pemeriksaan kadar ekspresi mRNA GDF9 dan BMP15 oleh analis lab. Hasil penelitian menunjukkan terdapat perbedaan bermakna maturasi oosit antara kelompok elektroakupunktur dengan elektroakupunktur *sham* (p=0,02); laju fertilisasi (p=0,03). Tidak didapatkan perbedaan bermakna kadar GDF9 (p=0,34) dan BMP15 (p=0,47) antara kelompok elektroakupunktur dengan elektroakupunktur *sham*. Kesimpulan penelitian ini adalah elektroakupunktur dapat meningkatkan maturasi oosit dan laju fertilisasi pada program FIV.

*Increasing prevalence of infertility in Indonesia every year also increases the need for infertile couples in the in vitro fertilization program (FIV). It is known that oocytes have an important role in the success of FIV. But in its implementation, oocytes obtained during oocyte retrieval have unequal maturity. From several studies it was found that controlled ovarian stimulation (COS) can increase the apoptosis of granulosa cells and *reactive oxygen species* (ROS) which can have a negative effect on oocyte maturation. This study aims to determine the effect of electroacupuncture on oocyte maturation, fertilization rate, levels of GDF9 and BMP15 in the FIV program. A double blind randomized clinical trial with controls was conducted on 24 subjects who underwent the FIV program. Subjects were randomly allocated to the electroacupuncture group (n = 12), and the electroacupuncture sham group (n = 12). The assessment of oocyte maturation and the rate of fertilization were carried out microscopically by the embryologist, while the examination of the levels of GDF9 and BMP15 mRNA by lab analysts. The results showed that there were significant differences in oocyte maturation between the electroacupuncture group and electroacupuncture sham (p = 0.02); fertilization rate (p = 0.03). There were no significant difference in GDF9 levels (p = 0.34) and BMP15 levels (p = 0.47) between the electroacupuncture group and sham electroacupuncture. The conclusion of this study is electroacupuncture can enhance oocyte maturation and fertilization rate in the FIV program.*