

Efek penghambat phosphodiesterase tipe 5 (sildenafil), nitric oxide-donor dan kombinasinya pada mortilitas spermatozoa manusia in vitro = The effect of type 5 phosphodiesterase infibitor (sildenafil), nitric oxide-donor, and their combination on human spermatozoa in vitro

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Abstrak

Objective: To examine the direct effect of type 5 phosphodiesterase inhibitor (sildenafil), nitric oxide-donor (sodium nitroprusside) and their combination on human spermatozoa in vitro.

Method: Semen samples were collected by masturbation after 3 days of abstinence from donors presenting for infertility evaluation at Imunoendocrinology Labolatory. Samples were divided into normospermia and asthenospermia. Each group were washed on discontinuous density gradient (Percoll 45% and 90%) at 300g for 20 minutes, then resuspended in capacitation media containing Ham's F10. Aliquots of 10×10^6 spermatozoa were reacted with PDE5 inhibitor, NO-donor, their combination, and also Pentoxifylline (non-selective PDE) in different doses (0.1, 1 and 10 μmol). Minimally 6 samples were test for each dose. After 1 hour incubation at 37°C , 5% CO_2 in air, microscopic analyses were performed to count motility. Analysis of Variance (ANOVA) was used to test difference among the means.

Result: There were 27 normospemia samples and 24 asthenospermia samples. In normopsermia group, Sildenafil, NO-donor and their combination increase spermatozoa motility significantly if compare to their blank (p 0.023, 0.015, 0.006). Sildenafil caused dose-dependent increase in spermatozoa motility. Low dose NO-donor increase motility. Combination of Sildenafil and NO-donor could not increase motility better than Sildenafil or NO-donor alone. Sildenafil or NO-donor increase motility higher than Pentoxifylline. In asthenospermia group, Sildenafil, NO-donor, Sildenafil+NO-donor, and Pentoxifylline increase motility compare to their blank, but there were no significant difference.

Conclusion: Sildenafil, NO-donor and their combination increase spermatozoa motility significantly if compare to their blank. NO-donor could not enhance the effect of Sildenafil to increase motility.