Levamisol sebagai spermistatik terhadap kualitas spermatozoa manusia in vitro

Yovita Harmijatun, author

Abstrak

ABSTRACT
Levamisole is used as an anthelminthic; it is effective in the treatment of Ascaris suum infection, and it is considered to paralysethe Ascaris' muscle by inhibition of succinate dehydrogenase, so the muscle is deficient in ATP. There are similarities in the contraction system of the muscle of Ascaris and the contractile system of the spermatozoa. Thus, the effect of Levamisole on the quality of human spermatozoa in vitro was studied at dosages of 2.3 no, 4.5 mg, 6.8 mg, 7.3 mg, 8.2 mg and 9.1 mg per ml of semen. The quality of spermatozoa includes motility, integrity of the plasma membrane and viability. It was ascertained to be within the required percentage. The spermatozoa was examined to see whether Levamisole could render all of them immotile within a period of 2 minutes or Less, and if they become immotile, whether Levamisole has the capacity of destroying the integrity of the plasma membrane. It was also deter-mined if the immotile spermatozoa were all nonviable. The integrity of the plasma membrane was examined by HOS test, and sperm viability was determined by eosin Y test. Human semen {43 samples) used for this study were be fertile as stipulated. by WHO and Farris.

It was observed that Levamisole at the Lowest dosage (2.3 mg/ml semen) was able to reduce sperm motility; the higher the Level, the greater the effect, and at a dosage of 9.1 mglml, all the spermatozoa become immotile within less than 2 minutes. ALL the spermatozoa that become immotile Loss the integrity of the plasma membrane. In addition, the spermatozoa that had become immotile, after being washed and tested with eosin Y, were revealed to be nonviable.;A close study about the effects of the addition of zirconium (Zr) and lanthanum (La) metals on the condutivity and heat resistance of commercial purity aluminium has been carried out on the three kinds of aluminium samples consisting of commercial purity aluminium (Sample A), aluminium with the addition of Zr (Sample B), as well as aluminium with the addition of 0.04 wt % Zr and La (SampleC). The samples were made by casting and rolling processes to form a-3.52 mm wire in diameter. The electrical conductivity of the aluminium samples was determined by measuring the resistivity employing Kelvin double bridge instrument. The heat resistance properties were obtained by measuring their strength before and after heating the sample for one hour at various temperatures, and by measuring their DSC curves. To elucidate the effect of the addition of Zr and La to the properties of aluminium, their microstructures were also observed by the optical as well as electron microscopes and their lattice parameters were confirmed by X-ray diffraction. The results shows that the addition of 0.04 wt.% Zr increased the heat resistance of aluminium from 85.1% to 91.0 %, however it reduces their electrical conductivity from 61.78 % IACS (International Annealed Copper Standard) to 60.07 % IACS. By the addition of La into aluminium containing 0.04 % wt. %Zr, the electrical conductivity of the Sample B can be increased from 60.07 IACS to 60.80 %IACS. There is a strong indication that the increase of the heat resistance was caused by grain refinement and the second phase formation in the aluminium, whereas the

increase in the electrical conductivity of aluminium was caused by a decrease in the solid solubility of impurities in the aluminium due to the addition of lanthanum elements. Based on the data from such study, the optimum heat resistance and electrical conductivity were obtainable by the addition of 0.04 wt. °A Zr and 0.13 wt. % La.</i>