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SARS-CoV-2 antibody response to third dose vaccination in a healthy cohort

Determining the extent of immunity induced by booster doses of COVID-19 vaccinations is crucial for informing recommendations for booster dose regimens as well as constant adjustments of immunization strategies amongst different groups of people within the population. The study involved 31 healthy volunteers (majority were healthcare professionals) who completed either vaccination course with Pfizer or Moderna mRNA vaccines and received a third dose of the vaccine. Here we report results on the evaluation of an antibody response to four different SARS-CoV-2 antigens: RBD, S1, S2 and nucleocapsid prior to third dose and two and four weeks after a booster vaccination. We detected a peak of high titers of antibodies after the third dose with a gradual decline after four weeks. No significant differences were seen between the two vaccines in terms of antibody response. There were no gender discrepancies between the two vaccines. Our results suggest that: third doses are necessary due to the emergence of different SARS-CoV-2 variants and postvaccination antibody testing continues be essential in determining possible standardization of SARS-CoV-2 vaccines regimens.

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Modulation of atrial natriuretic peptide receptors in ovarian folliculogenesis

Specific receptors for atrial natriuretic peptide (ANP) located in intra-ovarian tissues are suggested to be involved in ovarian functions such as oocyte maturation and follicle development. However, the characteristics and modulation of its receptor in relation to ovarian folliculogenesis are not well defined. This study examined the properties of ANP receptors in the ovary using quantitative receptor autoradiography. In the pig ovary, the highest binding sites for 125I-ANP(1-28) were localized in the granulosa cell layer of the follicles as well as cumulus oophorous. The binding sites for 125I-ANP(1-28) on theca layer of the ovarian follicles were mainly localized in the external layer, but none was observed in the internal layer. Specific binding of 125I-ANP(1-28) was not found clearly in atretic follicles. In the corpus luteum, the binding site was not observed. Analysis of the competitive inhibition of the binding of 125I-ANP(1-28) to the granulosa and theca externa layers in various preovulatory follicles by increasing concentrations of unlabeled ANP(1-28)
was consistent with a single high affinity for 125I-ANP(1-28). The maximal binding capacities of 125I-ANP(1-28) in granulosa layer were significantly increased in proportion to the development of ovarian follicles. However, no significant difference of binding capacities of 125I-ANP(1-28) was observed in theca externa layer. The binding affinities of 125I-ANP(1-28) in granulosa and theca externa layers were not different from each other. Especially, the correlation between specific binding of 125I-ANP(1-28) and follicle diameter. A significant correlation was revealed between specific binding of 125I-ANP(1-28) and follicle diameter ($R = 0.88$, $p < 0.0001$) in granulosa layer, however, less relationship was detected in theca externa layer ($R = 0.50$, $p < 0.0001$). Therefore, these results indicate that the biological ANP receptors exist in granulosa and the theca externa layers of the pig ovary, and suggest that the ANP receptors in granulosa layer may be related to the regulatory function of the ovarian follicullogenesis including oocyte maturation.
