

عنوان مقاله:

Silymarin protects plasma membrane and acrosome integrity in sperm treated with sodium arsenite

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خلاصه مقاله:

Background: Exposure to arsenic is associated with impairment of male reproductive function by inducing oxidative stress. Silymarin with an antioxidant property scavenges free radicals. Objective: The aim of this study was to investigate if silymarin can prevent the adverse effects of sodium arsenite on ram sperm plasma membrane and acrosome integrity. Materials and Methods: Ram epididymal spermatozoa were divided into five groups: spermatozoa at 0 hr, spermatozoa at 180 min (control), spermatozoa treated with silymarin (20 μ M) + sodium arsenite (10 μ M) for 180 min, spermatozoa treated with sodium arsenite (10 μ M) for 180 min and spermatozoa treated with silymarin (20 μ M) for 180 min. Double staining of Hoechst and propidium iodide was performed to evaluate sperm plasma membrane integrity, whereas comassie brilliant blue staining was used to assess acrosome integrity. Results: Plasma membrane ($p < 0.001$) and acrosome integrity ($p < 0.05$) of the spermatozoa were significantly reduced in sodium arsenite group compared to the control. In silymarin + sodium arsenite group, silymarin was able to significantly ($p < 0.001$) ameliorate the adverse effects of sodium arsenite on these sperm parameters compared to sodium arsenite group. The incubation of sperm for 180 min (control group) showed a significant ($p < 0.001$) decrease in acrosome integrity compared to the spermatozoa at 0 hour. The application of silymarin alone for 180 min could also significantly ($p < 0.05$) increase sperm acrosome integrity compared to the control. Conclusion: Silymarin as a potent antioxidant could compensate the adverse effects of sodium arsenite on the ram sperm plasma membrane and acrosome integrity.

کلمات کلیدی:

Spermatozoa, Arsenic, Silymarin

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