

Abstract

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Antioxidant activity of N-acetylcysteine, flavonoids and alpha-tocopherol on endometrial cells in culture.

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BACKGROUND: An appropriate local environment is necessary for successful implantation. Oxidative stress is implicated in the pathogenesis of several pathologies, and may contribute to early pregnancy failure. Antioxidant therapies have been studied in infertility.

METHODS: In this study, we have assessed the antioxidant activity of N-acetylcysteine (NAC), flavonoids (quercetin, catechin) and alpha-tocopherol in an oxidative model of endometrial cells (RL95). Endometrial cells were incubated at several hydrogen peroxide concentrations. Antioxidant effects of NAC (15 mM), quercetin (150 microM), catechin (150 microM) and alpha-tocopherol included in liposomes (1.6 microg) were assessed by measuring cell viability by the MTT assay. Alpha-tocopherol-liposomes taken up by endometrial cells were assessed by HPLC. All liposomes used were able to introduce alpha-tocopherol into cells.

RESULTS: The antioxidant effect of NAC and quercetin improved the viability of oxidised cells, and this effect was observed when the oxidant and antioxidant were coincubated. No viability change occurred when the antioxidant was added before or after the oxidant. The antioxidant effect of NAC was better than that of quercetin. When catechin or alpha-tocopherol were used in the same conditions, no antioxidant effect was detected in cells in culture.

CONCLUSION: These results demonstrate that NAC and quercetin are good H₂O₂ scavengers.

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