

**Is there a relationship between oxidative stress and the embryotoxicity of hydrosalpinx fluid on mouse embryo development?**

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**Objective:** The pathophysiology of hydrosalpinx remains unclear. In the present study we examined the role of oxidative stress and embryotoxic effect of hydrosalpinx fluid (HSF) on mouse blastocyst development rate (BDR).

**Design:** Prospective study in a tertiary care facility.

**Material and Methods:** Hydrosalpinx fluid was collected from six infertile patients undergoing laparoscopic examination. Levels of reactive oxygen species (ROS) and total non-enzymatic antioxidant capacity (TAC) were measured by chemiluminescence assay and lipid peroxidation (LPO) by the thiobarbituric acid method. Mouse embryotoxicity was measured by observing the BDR of 2-cell embryos incubated with 25%, 50% and 75% concentration of HSF.

**Results:** Varying but very small amounts of ROS and TAC levels were seen in HSF. LPO activity was detected in all samples [median (25% and 75% interquartile range (10450 (2700 - 10840)]. Significant differences were seen in the hydrosalpinx embryotoxicity at different concentrations ( $p < 0.0001$ ).

Patient No.	HSF (mL)	Vol. LPO ( $\mu\text{M/L}$ )	Percentage blastocyst development rate		
			25% HSF	50% HSF	75% HSF
1	3.5	650	80 (8/10)	50 (5/10)	30 (3/10)
2	2.5	2,700	80 (8/10)	50 (5/10)	40 (4/10)
3	21	17,480	90 (9/10)	62.5 (5/8)	37.5 (3/8)
4	26.5	10,840	80 (8/10)	50 (5/10)	40 (4/10)
5	4	10,450	87.5 (7/8)	50 (4/8)	25 (2/8)
6	1.8	NA	90 (9/10)	60 (6/10)	40 (4/10)

Number in parentheses indicate the number of embryos reaching the blastocyst stage to the total number of embryos; NA = not available.

**Conclusions:** The embryotoxic effect of HSF is concentration dependent. Both, presence of LPO and decreased amount of TAC in HSF suggest a possible role of oxidative stress in the pathophysiology of hydrosalpinx.

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