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Relationship Between the Use of Antihistamine Drugs and Sperm Quality: A Systematic Review Study

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ABSTRACT

Introduction: Antihistamines treat allergy symptoms such as hives, a runny nose, sneezing, and itchy eyes. There are different types of antihistamines, divided into three main generations. According to some research, the use of certain antihistamine medications may negatively affect fertility. With the significant increase in the use of antihistamines in today's society, this study aimed to review the relationship between this group of drugs and male fertility.

Search Strategy: Following the Cochrane systematic review principles and PRISMA guidelines, a systematic search was conducted across international databases, including PubMed, Scopus, and Web of Science, alongside the Google Scholar search engine for searching grey literature. Keywords used included "Histamine Antagonist", "Antihistamines", "semen", and "sperm". Inclusion criteria encompassed all observational studies investigating the quality of sperm in men using antihistamine drugs. All reviews, interventional studies, animal studies, letters to editors, and book chapters were excluded. Two authors independently screened and extracted data, resolving discrepancies by a third author. The quality of the included studies was assessed using the Newcastle-Ottawa scale tool, and information was organized into an extraction table.

Results: Of 92 initial articles, 29 were removed due to duplication and 48 due to lack of relevance, leaving 15 articles. Of these, 11 were excluded based on the inclusion criteria, resulting in 4 final articles being included in the study. These articles were conducted on 57 fresh human seminal fluid samples collected from healthy volunteers who were non-smokers and non-alcoholics and patients attending a semenology clinic. Samples were used within two hours of collection. The two classical antihistamines studied, promethazine and chlorpheniramine, produced a dose-dependent decrease in sperm motility, with promethazine being the more potent. The probable mechanism involves antihistamines' local anaesthetic effects, which stabilize cell membranes, and H1 receptor antagonists decreasing sperm viability in a dose- and time-dependent manner, with promethazine having the lowest concentration needed to reduce sperm viability.

Conclusion and Discussion: The findings of this study suggest that the two classical antihistamines, promethazine and chlorpheniramine, may significantly impact sperm motility, resulting in decreased motility.

Keywords: Chlorpheniramine, Sperm motility, Systematic review

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