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REVIEW ARTICLE

Occupational safety in the embryology laboratory

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KEYWORDS

Safety;
Workload;
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Abstract

Purpose: To analyse the occupational safety measures used by clinical embryologists and their relationship with conditions in the workplace.

Methods: An online questionnaire was designed to gather demographic and occupational information, together with safety and ergonomics in the workplace and was sent to all the embryologists that are members of the Association for the Study of Biology of Reproduction (ASEBIR).

Results: It was found that 11.2% of embryologists never wear gloves when handling semen, and 19.6% never wore them while working with follicular fluid. In addition, 30% rarely or never use protection when working with liquid nitrogen. Between 23.3% and 47.5% believe their working conditions are not comfortable. Logistic regression analysis showed that embryologists working in small laboratories (fewer than five people) and those who considered ventilation to be inadequate are less likely to wear gloves while handling follicular fluid. On the other hand, those with less than ten years of experience and those who considered the laboratory ventilation to be inadequate are less likely to wear gloves while working with liquid nitrogen. Embryologists working in large laboratories receive more training in safety in the workplace.

Conclusion: The results of this study indicate that the provision of workplace safety measures in embryology laboratories is related to perceptions of risk, the characteristics of the work, the level of embryologist experience, the size of the laboratory, and the working conditions.

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PALABRAS CLAVE

Seguridad;
Carga de trabajo;
Accidente;
Ergonómico

Seguridad laboral en el Laboratorio de Embriología

Resumen

Objetivo: Analizar las medidas de seguridad laboral utilizadas por los embriólogos clínicos y su relación con las condiciones de trabajo.

Métodos: Se envió un cuestionario online sobre cuestiones demográficas y ocupacionales, así como seguridad y ergonomía en el lugar de trabajo, a todos los embriólogos miembros de ASEBIR.

Resultados: Se encontró que el 11,2% de los embriólogos nunca usa guantes al manipular semen, y el 19,6% tampoco lo hace cuando trabaja con líquido folicular. Además, el 30% usa rara vez o nunca protección cuando trabaja con nitrógeno líquido. Entre el 23,3% y el 47,5% creen que sus condiciones de trabajo no son cómodas. El análisis de regresión logística mostró que los embriólogos que trabajan en laboratorios pequeños (menos de cinco personas) y los que consideraban que la ventilación es inadecuada, son menos propensos a usar guantes cuando manipulan líquido folicular. Por otra parte, los embriólogos con experiencia inferior a diez años y los que considera la ventilación del laboratorio inadecuada, son menos propensos a usar guantes mientras trabajan con nitrógeno líquido. Embriólogos que trabajan en grandes laboratorios reciben más formación en materia de seguridad laboral.

Conclusión: Los resultados de este estudio indican que la utilización de medidas de seguridad en los laboratorios de embriología se relaciona con la percepción del riesgo y grado de experiencia de los embriólogos, y con las características del trabajo, tamaño del laboratorio y condiciones laborales.

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Introduction

Clinical embryologists are exposed to biological hazards (infectious diseases) and physical ones (liquid nitrogen and sharp instruments) in their daily laboratory work, and significant numbers of accidents in the workplace have been reported (Tomlinson, 2008).

To minimise fatigue and distraction, it is important to be aware of recent developments in equipment and facilities, ergonomics (bench height, adjustable chairs, microscope eye height, etc.), the efficient use of space and surfaces and appropriate air quality and light conditions, with controlled humidity and temperature. It is also fundamental to ensure that appropriate numbers of staff are present, with the necessary experience to address the laboratory workload and the techniques required (Magli et al., 2008).

Policies related to occupational safety should be adopted and proper training given in preventive measures and efficient risk management (Mortimer and Mortimer, 2004). The correct application of safety measures in the embryology laboratory has been related with individual characteristics, such as experience (Tomlinson and Morroll, 2008). However, the application of safety measures does not always facilitate performance of the tasks involved, and are sometimes found uncomfortable or rejected by the workers. For example, the use of gloves in the embryology laboratory has been associated with low rates of embryonic development (Nijs et al., 2009).

In this study, we analyse the adoption of security measures by clinical embryologists and its relation with the conditions in which they work. ≤

Materials and methods

Study design

Secondary study of a cross-sectional design to conduct an online self-assessment survey.

Participants

The study population included in the present study, consisted of all the embryologists who are members of the Spanish Association of Clinical Embryologists (*Asociación para el Estudio de la Biología de la Reproducción*; ASEBIR) who had been working during the previous nine months. In 2013, two e-mails were sent to all ASEBIR members explaining the aims of the research. At the time of the survey, ASEBIR had a total of 787 members (212 male and 575 female; 26.9–73.1%), of whom 184 (23.4%) were working in public laboratories (data obtained from the ASEBIR secretariat). The e-mails sent contained a link to the online questionnaire and consent form. Google Drive was used as an online platform for the questionnaires. To estimate the true value of the proportion of accidents in the last year with a precision of 4%, at a 95% confidence level and assuming a prevalence of 25% (Fritzsche et al., 2012), a study population of 230 persons was required. The study was approved by the Research Ethics Committee of the Virgen de las Nieves University Hospital (Granada).

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