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PERSPECTIVE ȘI PROVOCĂRI ÎN IDENTIFICAREA RISCURILOR LA LOCUL DE MUNCĂ AL CHIRURGILOR

INSIGHTS AND CHALLENGES IN IDENTIFYING WORKPLACE RISKS FOR SURGEONS

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Rezumat

Introducere. În domeniul medical, chirurgia reprezintă o disciplină esențială și solicitantă care implică proceduri complexe care necesită abilități tehnice remarcabile și concentrare intensă. Cu toate acestea, chirurgii se confruntă cu numeroase riscuri profesionale în practica lor zilnică. Scopul principal al acestui studiu bibliografic este de a investiga în detaliu factorii de risc profesional pentru chirurghi și de a analiza modul în care acești factori pot afecta sănătatea personală și bunăstarea profesională a practicienilor în chirurgie.

Material și metode. A fost realizat un studiu bibliografic pentru a identifica factorii de risc profesional asociați chirurgilor. Aceasta a implicat analizarea articolelor din baze de date precum PubMed, Hinari și Google Scholar, folosind cuvinte cheie precum „riscuri profesionale”, „chirurgi”, „sănătate în muncă”, „impactul profesiei chirurgicale” și „prevenirea riscurilor”. Studiul sa concentrat pe publicațiile din ultimii 10 ani pentru a oferi o perspectivă actualizată asupra problemelor de sănătate și siguranță în chirurgie.

Rezultate. Factorii de risc profesional pentru chirurghi sunt diverși și includ expunerea la infecții transmisibile, cum ar fi hepatita virală și HIV, cauzate de manipularea fluidelor corporale și a materialelor biologice în timpul intervențiilor chirurgicale. Chirurgii sunt, de asemenea, expuși riscului de leziuni musculo-scheletice din cauza pozițiilor fixe prelungite și a manevrelor repetitive în timpul operațiilor, care pot duce la dureri cronice de spate sau gât. Expunerea la substanțele chimice periculoase utilizate în sala de operație este o altă preocupare majoră, cu potențialul de a provoca probleme respiratorii sau dermatologice. Pe lângă aceste aspecte fizice, presiunea psihologică este un factor de risc semnificativ pentru chirurghi din cauza nivelurilor ridicate de stres și a responsabilității pentru rezultatele pacientului. Aceste condiții pot duce la epuizare emoțională, afectând în cele din urmă sănătatea mintală a chirurgilor.

Concluzii. Pentru a gestiona și a minimiza aceste riscuri, este esențial să se implementeze măsuri ergonomice adecvate în sala de operație, să se utilizeze riguros echipamentul de protecție personală, să se ofere instruire continuă privind siguranța la locul de muncă și să se adopte politici de gestionare a stresului și bunăstare mentală. Aceste strategii nu numai că protejează sănătatea chirurgilor, ci contribuie și la o practică chirurgicală mai eficientă și mai sigură, asigurând în cele din urmă îngrijire de înaltă calitate a pacientului.

Cuvinte-cheie: risc profesional, boală profesională, chirurghi, sănătate, prevenire

Summary

Introduction. In the medical field, surgery represents an essential and demanding discipline involving complex procedures that require remarkable technical skills and intense concentration. However, surgeons face numerous occupational risks in their daily practice. The main purpose of this bibliographic study is to thoroughly investigate the professional risk factors for surgeons and analyze how these factors can impact the personal health and professional well-being of surgical practitioners.

Material and methods. A bibliographic study was conducted to identify occupational risk factors associated with surgeons. This involved analyzing articles from databases such as PubMed, Hinari, and Google Scholar, using keywords such as "occupational risks," "surgeons," "occupational health," "impact of surgical profession," and "risk prevention." The study focused on publications from the last 10 years to provide an updated perspective on health and safety issues in surgery.

Results. Occupational risk factors for surgeons are diverse and include exposure to transmissible infections such as viral hepatitis and HIV, caused by handling bodily fluids and biological materials during surgeries. Surgeons are also at risk of musculoskeletal injuries due to prolonged fixed positions and repetitive maneuvers during operations, which can lead to chronic back or neck pain. Exposure to hazardous chemicals used in the operating room is another major concern, with the potential to cause respiratory or dermatological problems. In addition to these physical aspects, psychological pressure is a significant risk factor for surgeons due to high stress levels and responsibility for patient outcomes. These conditions can lead to emotional exhaustion and burnout, ultimately affecting the mental health of surgeons.

Conclusions. To manage and minimize these risks, it is essential to implement appropriate ergonomic measures in the operating room, rigorously use personal protective equipment, provide continuous workplace safety training, and adopt policies for stress management and mental well-being. These strategies not only protect the health of surgeons but also contribute to more efficient and safer surgical practice, ensuring high-quality patient care in the end.

Keywords: occupational risk, occupational disease, surgeons, health, prevention

Introduction

Health is the state of complete physical, mental, and social well-being, and not merely the absence of disease. A healthy

work environment is one where not only are hazards absent, but actions that promote health are also present.

The nature of work in various fields of medicine shares

many common traits, but each specialty has its own specifics regarding job content and occupational conditions. The quality and efficiency of medical personnel's work largely depend on their working conditions and health. During their professional activities, healthcare workers are exposed to various harmful and unfavorable factors: physical, chemical, and biological. The work of healthcare professionals requires intellectual and psychological efforts, involving the musculoskeletal system with dynamic and static muscular efforts, as well as uncomfortable working positions.

Surgical medicine is an essential and demanding branch of the medical profession, involving complex procedures that require exceptional technical skills and intense concentration. Despite their importance in the healthcare system, surgeons face multiple occupational risks during their daily activities [1]. These risk factors include exposure to sharp instruments, bloodborne pathogens, hazardous chemicals, and significant stress factors. Although these risks are recognized, there is often a tendency to underestimate their impact on surgeons' personal health.

Surgeons are not exempt from the inherent occupational risks of their daily practice. The demanding nature of surgical work, along with long hours and high-pressure environments, contributes to physical and mental strain. Moreover, many surgeons' reluctance to prioritize their own health and seek appropriate assistance when needed exacerbates these risks. Addressing these challenges is crucial to protect occupational health and overall effectiveness of surgeons, ensuring they can continue to provide optimal care to their patients [2].

Proper management of professional risks for surgeons is essential for several reasons that extend beyond immediate concerns of individual health and safety. By implementing effective risk management strategies, medical institutions can promote a work environment that not only protects surgeons but also enhances overall healthcare delivery and patient outcomes.

In addition to protecting surgeons, ensuring their optimal physical and mental state directly impacts patient safety. Surgeons must maintain peak performance levels to provide precise and effective medical care. By minimizing distractions and potential hazards in the operating room, the likelihood of medical errors and procedural complications can be reduced, thereby improving overall patient outcomes [3].

Compliance with legal regulations and safety standards is also crucial. Medical units are obligated to adhere to workplace health and safety guidelines to protect their workforce. Failure to do so not only jeopardizes the well-being of staff but can also lead to legal liabilities and financial penalties for the institution.

Furthermore, a safe work environment enhances operational efficiency and productivity within medical units. Surgeons who feel safe and supported in their roles are more likely to perform at their best, contributing to streamlined workflows and reduced absenteeism due to work-related health issues or stress.

Addressing psychosocial factors such as stress and burnout is equally essential. The demanding nature of surgical

practice can impact mental health, leading to fatigue, anxiety, or depression among healthcare professionals. Implementing stress management strategies, providing psychological support, and promoting work-life balance can mitigate these risks and contribute to sustaining a resilient and motivated surgical workforce [4].

Material and methods

A bibliographic study was conducted to identify modern occupational risk factors associated with surgeons. This involved analyzing articles from databases such as PubMed, Hinari, and Google Scholar, using keywords such as "occupational risks," "surgeons," "occupational health," "impact of surgical profession," and "risk prevention" and the BOOLEAN operators "AND", "OR" and "NOT". The study focused on publications in the field to provide an up-to-date perspective on health and safety issues in surgery. Comparing and synthesizing data and conclusions from diverse sources to highlight trends and common patterns related to occupational risks. The inclusion criteria for the analysis of publications were defined as: articles published in the period 2000-2024; types of studies - narrative reviews, descriptive and observational studies on occupational risk factors characteristic of surgeons, with clear and explicit methodology; articles written in English and Romanian; open access publications. Articles found published before 2000 were not included in the research.

Results and discussions

Medical practice, like other professions, is associated with occupational risks. Healthcare workers, including surgeons, face various physical and psychological risks daily [5]. The daily workload of a surgeon exposes them to a variety of common work-related illnesses. They encounter numerous occupational hazards in their professional activities, such as sharp injuries, bloodborne pathogens, latex allergies, laser burns, hazardous chemicals, anesthetic gases, equipment hazards, static postures, and stress factors. Despite these risks, many surgeons pay little attention to their health and fail to seek appropriate help when needed. It is evident that occupational risks pose a significant threat to the personal well-being of surgeons. It is appropriately emphasized that awareness and early education are crucial, alongside prompt intervention. Therefore, heightened attention to the personal and social health implications of these injuries is essential for proper management and prevention [6, 7].

Surgeons are at risk of daily injury in the operating room. With sharp objects being essential parts of the operating room, it is no wonder that surgeons are considered the most exposed to risk. Work-related accidents (needle sticks, contact with blood, skin, and mucous membranes) have been significant, with reports to occupational health units being extensive. Therefore, surgeons in the operating room are exposed to punctures and cuts from sharp objects, especially needles and blade cuts; burns from hot water and steam used in sterilization equipment or from machines supplying hot air for drying purposes; electric shocks from faulty equipment or equipment with defective insulation;

acute back pain resulting from the uncomfortable position of the body during surgery; and hearing loss induced by noise [8, 9].

The occupational environment, influenced by the specific activities and conditions in which medical workers operate, is characterized by a combined action of physical, chemical, and biological factors. The general work content of a surgeon includes: collecting patient history, examining and interrogating patients; assessing diagnoses based on history and physical examination; deciding on the correct provision of urgent medical care, considering the nature and severity of the disease or trauma; prescribing and performing diagnostic and treatment measures, including surgical interventions in both inpatient and outpatient settings; preparing and performing surgical operations; daily patient visits; participating in dressing changes, handling documents, attending conferences, consultations, etc. Occupational risk factors for surgeons can vary significantly depending on their specialty and the nature of their practice [4]. Before commencing surgical intervention, the surgeon must have essential information: the diagnosis, the patient's general condition, results of functional and laboratory investigations, the patient's readiness for surgery, and the composition of the surgical team. Based on the analysis of this information, the surgeon acts as required. In the operating room, the surgical assistant prepares the necessary surgical instruments and sterile materials, arranges them appropriately at the workstation, and during surgery, ensures the correct placement of surgical instruments and sterile materials on the supplementary table. They coordinate actions between the surgeon and the surgical assistant, anticipating the need and order of presentation of instruments and materials at the appropriate times. In the surgical ward, medical assistants oversee compliance with the physician's orders for functional and laboratory tests, and they prescribe treatment for each patient. Throughout a 24-hour service period, the surgeon provides medical assistance to a variable number of patients, ranging from 6 to 40, while medical assistants in the admission ward care for between 50 to 120 patients. In the operating block, assistants support up to 6 surgeries of varying severity/complication levels. In the wards of each surgical section, up to 40 patients receive treatment. The highest number of patients and accident victims are seen during winter and autumn, approximately 95.0 ± 17.5 and 84.2 ± 22.5 patients, due to weather-related trauma [10]. Surgeons are regularly exposed to infectious agents present in surgical sites and bodily fluids, increasing the risk of contracting infections, especially if appropriate personal protective equipment is not consistently used.

Professional risk factors for surgeons can vary significantly depending on their specialty and the nature of their practice. Surgeons are exposed to the risk of injuries from needles and other sharp instruments during procedures, which can lead to exposure to blood-borne pathogens such as HIV, hepatitis B, and hepatitis C. Prolonged hours in uncomfortable positions during surgery can contribute to musculoskeletal problems such as back pain, neck pain, and repetitive strain injuries [11].

Musculoskeletal pain related to work is a frequent issue for surgical doctors due to the specific conditions and activities involved in their occupation. Prolonged periods in uncomfortable positions during surgery can contribute to musculoskeletal problems such as back pain, neck pain, and repetitive strain injuries [11].

These conditions can lead to the development of musculoskeletal pain, affecting their comfort and efficiency during work. In a cross-sectional study, it was found that dentists have the highest prevalence of musculoskeletal pain (61%), followed by surgeons (37%), while physicians have the lowest prevalence (20%), comparable to the general population. Surgeons often suffer from musculoskeletal pain due to prolonged periods in static positions during operations (95%) [3].

Another occupational exposure factor for surgeons is hazardous chemicals, which can lead to respiratory problems or skin conditions. There are many hazardous chemicals in healthcare environments that pose risks to workers, patients, and others. These chemicals are critical for use in patient treatment, specimen fixation, and disinfection of surfaces, medical materials, and instruments. Some of the more dangerous chemicals include aerosolized medications, anesthetic gases, and chemical sterilizers or disinfectants [12]. Handling surgical chemicals, disinfectants, and anesthetic agents can expose surgeons to hazardous chemicals, potentially causing respiratory problems or skin conditions.

Surgeons performing procedures involving fluoroscopy (such as orthopedic surgeries) can be exposed to ionizing radiation, which can lead to long-term health risks such as cancer.

The demanding nature of surgical practice, including high-pressure situations, long hours, and responsibility for patient outcomes, can contribute to stress, burnout, and mental health issues among surgeons [13].

Surgeons often work long hours, including on-call shifts, which can lead to sleep deprivation and fatigue, affecting cognitive function and increasing the risk of medical errors. The specific demands of the surgical profession place major requirements on psychophysiological functions. According to self-assessment, the most significant functions for surgical specialists in emergency medical care are thinking ability, speed of perception and information processing, the time to make a single correct decision, and hand movement speed. Medical assistants in surgical departments consider concentration and attention stability important, while those in operating rooms value visual acuity, attention stability, coordination, and hand movement speed [14].

In addition to these risk factors, surgeons may face verbal or physical violence from patients or their families, especially in high-stress environments such as emergency departments or trauma centers.

Operating room personnel can be exposed to electrical hazards due to the use of medical equipment and devices during surgical procedures [7].

Operating rooms can have challenging environmental conditions such as high levels of noise, fluctuating temperatures, and exposure to surgical smoke, which may

contain harmful substances.

These occupational risk factors highlight the complexity and diversity of challenges faced by surgeons in their workplaces and underscore the need for implementing effective strategies to prevent and manage them in medical practice [13]. To mitigate these risks, hospitals and surgical teams implement various safety protocols, including the use of appropriate personal protective equipment, ergonomic practices, safety training, and adherence to infection control measures. Regular risk assessments and occupational health programs also play an important role in ensuring the safety and well-being of surgeons and operating room staff.

It is important to manage occupational risk factors to minimize surgeons' exposure to threats such as communicable infections, musculoskeletal injuries, and other negative health effects. By properly managing these risks, we can reduce incidents like needlestick injuries or medical errors caused by stress and fatigue. A safe and healthy working environment not only enhances surgeons' efficiency and focus, thereby contributing to delivering high-quality patient care, but also ensures compliance with workplace safety standards mandated by national and international health regulations. Additionally, efficient management of stress and other psychosocial factors can decrease the risk of burnout and improve overall well-being among surgeons, ensuring a healthy and motivated medical workforce. Understanding and effectively managing occupational risk factors for surgeons plays a dual role: protecting medical personnel and enhancing the efficiency and quality of healthcare services. Implementation of appropriate practices and protocols is essential to establish a safe and sustainable working

environment in surgical settings.

In the Republic of Moldova, the relationship between doctor and patient is regulated by the norms of medical ethics, bioethics, and medical deontology. According to a study conducted in Moldova (2013), nearly 70% of Moldovan surgeons reported resolving conflicts independently, without involving other individuals or state institutions. At the same time, 31% of surgeons seek assistance from the department head when disagreements arise with patients. 26% of surgeons resolve conflict situations with patients through or with the help of the institution's administration [15]. A smaller number of surgeons (7.3%) stated they would resolve conflicts with patients through legal means, while 6% acknowledged they would not resolve such conflicts [5].

Conclusions

1. Giving increased attention to the health status and occupational diseases of surgeons is essential in the context of workplace health. Surgeons face significant risks due to exposure to communicable infections during surgical procedures, including diseases such as viral hepatitis and HIV. Furthermore, their work can lead to chronic musculoskeletal injuries due to prolonged fixed positions and repetitive maneuvers.

2. Psychological pressure and stress in surgery can affect their mental health, making it essential to implement stress management programs and adequate psychological support.

3. Efficient management of occupational risks for surgeons not only protects their health and well-being but also enhances the overall quality and efficiency of healthcare services.

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