Avoiding Musculoskeletal Disorders

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By Stacy Molnar, CT(ASCP)CM

As cytotechnologists, we are exposed to potential workplace hazards every day. This statement may lead one to reflect on the chemicals and bodily fluids we are exposed to in a cytology laboratory. In fact, we need to look no further than our beloved microscopes. Prolonged use of microscopes, especially in combination with poor ergonomics, has been linked to the development of musculoskeletal disorders. In a recent article, the author, Evan George, discusses cumulative trauma disorders (CTDs) and steps we can take to help prevent their development (George E. Occupational hazard for pathologists: Microscope use and musculoskeletal disorders. American Journal of Clinical Pathology 2010. 133(4):543-8).

In this article, Dr. George provides suggestions we can incorporate into our everyday routine. Notably, Dr. George has reviewed and slightly modified the CDC Guidelines for microscope use. Workstation Design

One of the most important things we can do to offset CTDs is to ensure our workstations are set up properly. This means multiple components of the workstation should be adjustable. This includes the height of the work surface, chair and microscope. Furthermore, setup should promote neutral spinal posture and discourage forward leaning and rounding of the shoulders and neck. Suggestions to consider include moving the microscope to the edge of the work surface to discourage forward leaning and using a cut-out worktable for adequate forearm support. If a cut out worktable is unattainable, table-mounted armrests are recommended. Ideally, one should use a microscope with tilting and telescoping eyepieces. If this is not an option, consider maneuvering the microscope so that you are able to look directly into the eyepieces by elevating the microscope and/or placing it at an angle. Additionally, it is vital to use an ergonomically designed chair. This chair should have upper and lower back support as well as an adjustable seat height and adjustable seat angle. If raising the seat height prevents your feet from resting on the floor, a footrest is recommended.

Work Habits

In addition to workstation design, we must also examine our work habits. The CDC recommends that individuals should not use a microscope more than 5 hours a day. The risk of developing CTDs increases with the duration of exposure to risk-associated activities (in our case, microscope use). Unfortunately, using the microscope for 5 hours a day is unrealistic for many cytotechnologists. For this reason, it is recommended that you avoid long, uninterrupted periods of microscope work by breaking up the day with other activities or frequent short breaks. While this may be a difficult adjustment for many cytotechnologists, these breaks, especially when used in conjunction with stretching exercises, may help prevent the discomfort of CTDs in the future. Acknowledging that most of us also use a computer, the CDC recommendations for computer use were also included in the article. The CDC recommends keyboards be positioned at a height such that the user's arms are approximately parallel to the floor with the mouse positioned at the same height.
Monitors should be placed 18 to 30 inches from the user with the top of the screen placed roughly at eye level. Use of a document holder, positioned at the same height as the monitor, should also be considered.

The CDC also encourages "minibreaks" of 3 to 5 minutes for every 20 to 30 minutes of keyboarding or mousework. Like the recommendations for microscope use, these breaks should be spent doing hand exercises and/or stretching.

Additionally, those with existing musculoskeletal problems should be given options to determine which keyboard and mouse works best for them.

While implementation of these recommendations may be financially or logistically difficult for some, it is important that we advocate for ergonomic work conditions. This may include getting an evaluation by a professional with expertise in ergonomics, such as a physical therapist or occupational therapist.

Performing microscope work while in pain or discomfort is not only unpleasant, it is a distraction. As we know, a distracted cytotechnologist does not perform to her greatest potential.

Ultimately, following the recommendations made in this article can benefit cytotechnologists, and more importantly, the patients we are dedicated to serving.

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