

Health Issues among Radiologists: Toll they Pay to their Profession

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ABSTRACT

In modern era, with tremendous competition, long working hours and more demanding workstyle, nearly every profession is associated with some or the other health hazards. These may develop and progress rapidly or in a gradual way but ultimately add up unwanted morbidities and in long run affects the production and work output. Unfortunately, doctors and other health professionals who look after the health of society, are not the exceptions to this rule and depending upon their specialty, they have to face some or the other health issues.

This article highlights some important though underestimated health issues among radiologists and some remedies. It aims to sensitize radiologists about such health issues so that they can take timely remedial measures before it is really late.

Keywords: Eye strain, Ergonomics, Musculoskeletal problems, Remedies

INTRODUCTION

There is a popular joke, "How do you hide a 100 dollar note from a radiologist?", and the answer is, "Stick it on a patient"! Jokes apart, a Radiologist's work primarily relies on detailed interrogation of stacks of images on computers or films, active search of the pathologies in them, by correlating with efficiently extracted clinically relevant information. It also involves simultaneously pouring over books or computer screen, prolonged focus on objects in various shades of grey, close to the eyes and finally reaching to a sensible diagnosis or a set of differentials. Thus, it is predominantly a sedentary work with lot of visual (including convergence and accommodation activities of eyes) and brain exercise [1]. With radiology now going round the clock and providing that cutting edge in every medical field, imaging head to toe in a patient, and relative shortage of radiologists globally there has been a steady increase in the workload per radiologist. Additionally, there is always a need of maintaining high accuracy throughout the day irrespective of the level of ocular fatigue. This increased workload and long working hours has gradually affected their health [1]. It is important to discuss these health issues because most of these problems remain unappreciated until they create serious morbidities among this group of medical professionals. With introduction of Picture Archiving and Communication System (PACS) and filmless departments, the radiologists work has mostly shifted to the computers from the earlier film based radiology. This has made radiologists prone to various visual and musculoskeletal problems related to excessive computers use. This article aims to sensitize the radiologists about the toll they pay to their profession and also discuss some ways to reduce such health issues by modifying certain factors.

Health Problems among Radiologists Related to their Profession

a) Ophthalmic health problems: Eye strain or asthenopia is one of the most common eye related problem among the computer users. Its prevalence has increased amongst radiologists due to the increased trend of filmless radiology departments and wider usage of PACS [1]. There is increased stress on ciliary muscles to adjust the convergence needs of the eyes in order to focus on the computer screen leading to ciliary muscle fatigue. Additionally, it has been observed that radiologists while concentrating on the images have reduced eyes blinking rate and this leads to dryness of eyes which adds to irritation and foreign body sensation in the eyes. Long working hours in such position cause transient symptoms like blurred vision, eye irritation and headache. No permanent

damage to the visual system occurs, although work performance can be temporarily compromised [1,2]. These groups of symptoms constitute asthenopia or eye strain, which can adversely affect the working efficiency as it transiently reduces the visual perception abilities and thus deteriorates the diagnostic abilities and work output. In a study conducted to assess the visual strain, the strongest risk factor was the length of the working day. Taking a break at least every hour reduced the risk of eye strain, though the length of break was not important [3].

Another factor for eye strain is lighting in the room. Reporting rooms should have good ambient light. It should be adjustable and neither too bright nor too dark and should be as bright as the computer screen.

Second ophthalmic health concern is the visual acuity. Visual acuity is one of the most important factors for accurate identification of the lesion in the images. Visual acuity decreases with age along with the detrimental effect of radiation over the lens. Such ailments markedly affect the reporting. Periodic eye checkups are essential especially among the ageing radiologists to prevent detrimental effect on visual acuity.

Another ocular issue is cataract which is particularly significant amongst intervention radiologists and cardiologists. Radiation induced cataract which occurs in posterior sub capsular region is a major health hazard. The probability increases with the increasing exposure and increasing number of years. Wearing radiation protection goggles diligently can prevent this condition [4,5].

b) Musculoskeletal health problems: Another vexing issue which has shown a sharp rise in the recent years is the musculoskeletal symptoms ranging from low backache to more severe neuromuscular symptoms. These group of symptoms are commonly termed as 'computer back or neck syndrome'. Inappropriate posture like hunching of back while reporting, long hours of sitting without breaks, lack of stretching etc., contribute to these symptoms [6]. Small breaks in between is needed with some back relaxing and stretching exercises.

In the passion of being an interventional radiologist and serve the patients, the interventionist usually overlooks the cost he has to pay sooner or later in his/her life while delivering his services. The health toll is taken by higher dose of radiation, heavy personal protective apparel, poor working design of the fluoroscopic equipment and the intervention suite. In the recent years, the radiation exposure amongst the health workers has been reduced however busy interventional radiologists may still exceed the acceptable limits [5,7].

Radiation Protective Apparels

There are newer trends to reduce the radiation exposure and burden of lead aprons in the intervention labs. These developments are to reduce the risk of radiation exposure and lighten the weight of personal protective devices like lead apron. Lighter weight materials, especially tin replacing the heavy lead in the conventional 'lead apron' are becoming very popular [5]. Additionally, newer aprons for example zero lead apron are also introduced by vendors which are lighter and provide equal radiation protection. Zero lead aprons include tungsten, bismuth and antimony instead of lead and are significantly lighter in weight as compared to lead aprons whilst providing equal protection from radiations [7].

A special mention must be made for female radiologists wanting to start a family: A sensitive issue crops up for female radiation workers working in a department with heavy workload. The crucial time period between conception and confirmation of a probable pregnancy, after which the worker should officially be considered to work in a less radiation prone zone, as it happens to coincide with the organogenesis of the foetus, having maximum chance of being at risk of accidental irradiation and all the consequential risk to the unborn child. Hence, a more sensitive understanding and individual tailoring out of the work schedule of various workers according to their special needs, is required.

Simple Solutions to Complex Problems

The issues as we see are many, but the solution to the problem lies in the problem itself. A little bit of change in the mind set and body habits of the radiologist can go a long way in keeping these health issues at bay. The following simple time tested techniques must be kept in mind by any radiologist to keep his eyes and neck muscles happy!

There is a commonly discussed rule also known as 20-20-20 rule which emphasizes to look at something 20 feet away after every 20 minutes for 20 seconds claims to have promising results in eye strain and asthenopia due to excessive computer usage. The ideal position for viewing a monitor is 25 inches (60 cm) away, with the gaze directed slightly below the horizontal plane. Secondly, computer monitors should be placed at the level of eyes so that unnecessary bending or stretching of neck can be reduced. Further, the height of computers should be adjusted according to the height of radiologist to avoid unnecessary strain to the eyes and neck muscles. Thirdly, ambient light in the reporting rooms and satisfactory monitor brightness should be maintained. Artificial tears and increased blinking may help. A simple technique called "Palming", where a small one minute break from the computer screen with the eyes being covered by both the palms of hands which are crossed, with the elbows resting on the table, have been found to be highly effective [8].

Basic yoga exercise for the neck, with slow neck movements in sideways, up down and rotational directions during a minute long break in between reporting will go a long way in reducing neck muscle spasms and development of cervical spondylosis. It will also give a refreshing break to the mind to get relaxed and work with a fresh vigour. The visual strain also gets taken off in that period. A one-stop solution offered by a one minute break.

Posture correction: Majority of our aches and pains are due to incorrect posture and inadequate stretching. As suggested in yoga, we should make a conscious effort to try to correct our slumped up or crouched posture by stretching our spine to keep these issues at bay.

Workstations should be designed according to the user with optional detachable or flexible hardware for example now-a-days wider usage of voice recognition systems for dictating radiology reports has reduced the usage of mouse and keyboards and is a promising trend to reduced illness like carpal tunnel syndrome [9]. It is suggested that the height of the reporting desk, computer screen and the sitting chair should be appropriate and can be adjustable as per the height of the doctor. Room lighting and brightness to be adjusted accordingly. Recent work at Cornell University highlighted various health issues including headache, eye strain and musculoskeletal problems among radiologist and offered a checklist to improve the ergonomic designs of radiologist workstation [10].

Finally, occupational health department within the institutes should actively look for adequate ergonomic design of the workstations to make the workplace appropriate and safer in order to reduce work related health issues among the radiologists. Regular eyesight check ups and maintaining appropriate weight and flexibility should be emphasized to reduce work related ailments.

CONCLUSION

To conclude, nearly every occupation has its major or minor effects over the health of the worker. Increasing the awareness and ergonomics by using simple indigenous techniques to minimize the toll is of utmost importance to reduce these health issues to improve the productivity.

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