Introduction

Infrared (IR) has been first discovered by William Herschel during 1800s. The well recognized applications of IR are drying of the car paints in automotive industry and paper drying in paper industry. However, it is widely used including a simple light source and medicine. Different from normal electric heaters, the products which operate through infrared system to heat the object by transmitting the heat by light have became popular during recent years.

We aimed to discuss eight patients who had watering, redness and sense of stinging and burning on the eyes after exposure to infrared light in a chemical manufacturing factory where infrared light was used for drying.

The Case

Eight male patients with age average between 18 and 33 years referred to emergency department because of burning, stinging, watering and redness on the eyes. It was learnt that it was started after taking a photo in daylight with infrared light that they used to dry the chemical materials at the factory where they were working. In the physical examination, there was watering, hyperemia in both eyes. Eye movements, pupil diameters, light reflexes were normal. Analgesic eye drops and saline irrigations were performed as a first intervention. Afterwards, the cases’ eyes were closed with eye closing tapes in order to minimize the photosensitivity. Ophthalmology consultation were requested. Analgesic drops were given after ophthalmology consultation and outpatient follow-up was planned, they were discharged.

Discussion

IR radiation is an electromagnetic energy and exists between visible light and microwave regions at electromagnetic spectrum. IR zone defines the electromagnetic radiation between 1.8 and 3.4 µm wavelengths. The IR lights are divided into 3 classes depending on the wavelength and emission temperature: 1-short wave or close IR zone, 0.72-2µm (3870-1180°C), 2-middle wave or moderate IR zone, 2-4
μm (1180-450°C), 3-long wave or far IR zone, 4-1000 μm (<450°C)\(^7\). The most common IR applications include drying of the car paints in automotive industry and paper drying in paper industry. However, it is used within a wide range of processes including a simple light source and medicine\(^2\).

Mori et al. detected in their study that\(^8\) the heat increase on lacrymal glands and eyelids except cornea was significantly higher when compared with other conventional heaters. Takac et al.\(^9\) started that UV lights shorter than 400 nm wavelength and long infrared lights may cause moderate to severe corneal burns. It was reported that chronic exposure to middle length infrared lights (1400-3000 nm) may cause cataract and carcinogenic effects. Use of adequate spectacles was addressed to be protected from such lights. At this point, our cases did not use any spectacles. Unsal et al.\(^3\) reported a case in form of eyelid burn due to exposure to infrared heater which is used for heating; however, our cases were injured at the workplace.

**Conclusion**

There is a gradual increase of infrared use at work and during daily life; the increase of incidence for use of these tools would cause an increase in burns involving sensitive organs such as eyes and in referrals to emergency department. Misuse of infrared light devices may simply cause irritation of the eye like our cases. Therefore, providing warning information and signs in the instruction manuals by the manufacturer companies and paying attention to such warnings would protect us from many possible severe health problems.

**References**