THE STUDY OF POST-MORTEM OCULAR CHANGES AND EYE BANKINGManish K¹, Jyothi N. Sanganal²**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: INTRODUCTION: Estimation of post-mortem interval is an important goal in forensic medicine. After death, many physiochemical changes occur in a regular sequence and can be used to arrive at an approximate time of death. Present Study was conducted to observe post-mortem eye changes presented with different PMI. A detailed knowledge of post-mortem eye changes with time is necessary for providing healthier cornea thereby playing a vital role in eye banking services to the community. **SUBJECTS AND METHODS:** The study was conducted on adult autopsy cases. In those including natural deaths, RTA & others, hanging, drowning and burns. Post mortem ocular changes such as corneal haziness, pupillary changes, fundus changes and intraocular pressure were studied. **RESULTS:** Almost all eyes presented with hazy cornea except those (22 cases) examined within 6 hrs of PMI, low intraocular pressure and variable pupillary changes (depending on PMI) and 22 cases with cattle track appearance of fundus. **CONCLUSION:** As observed Extended Post mortem interval has worst effect in eye especially on cornea. Though eye donation has gained its popularity. But public awareness regarding earliest notification of death to nearest eye bank and speedy network of eye bank services plays vital role in healthier corneal harvesting there by helping in eliminating corneal blindness. As with the period, the cornea loses its translucency and become a waste organ. Please do not burn your eyes.

KEYWORDS: Death, Autopsy, Cornea, Eye, Eye bank, Fundus, RTA, Postmortem interval.

INTRODUCTION: The various changes produced in the body after death help in finding out timing since death that has great value in medico legal practice and eye banking. These changes have been extensively described in almost every forensic literature.^{3, 4, 6, 8, 9} These changes play vital role in assessing post mortem interval. Though ocular changes are not conclusive but just suggestive evidence of death. Our study of interest is mainly concerned with eye changes particularly the cornea, which has utmost importance even after death. Healthy clear cornea can be used in treatment of corneal blindness thereby helping eye bank services.

MATERIALS AND METHODS: Present study was conducted over 196 dead bodies brought to District Hospital, Gulbarga, Karnataka for post-mortem examination. The information regarding exact time of death was gathered from police inquest report, dead body challan, clinical details from hospital records; correlated and checked from relatives, friends and attendants of the deceased.

Cases where exact time of death was not known were not included in this study. After detailed examination^{3,8,9} Post mortem interval and cause of death were opined.

Ocular examination^{1,2} included external examination with torch light, pupillary reaction, fundus examination with direct ophthalmoscope and digital Tonometry was performed by the ophthalmologist in the presence of the Forensic expert. Ocular findings were noted and data was analyzed.

ORIGINAL ARTICLE

OBSERVATION AND RESULTS: The study was conducted over 196 dead bodies brought to District hospital for post- mortem examination during the year 2013-2014 of which 132 were males and 64 females [i]. Out of total 196 bodies, 98 died due to RTA & other accidents, 44 due to burns, 22 due to poisoning, 14 due to natural death, 12 due to hanging, 2 due to drowning[ii]. In 162 bodies, the corneas were dull, lusterless and opaque with wrinkles on the surface. Pupils were dilated and fixed in all bodies. In our study 150 deceased had Postmortem interval 6-24 hrs, 22 cases with less than 6hrs and rest more than 24hrs [iii].

Ophthalmoscopic examination [iv] could be performed^{1,2} in 22 bodies only due to hazy cornea. All of which revealed typical cattle-truck appearances. All eyes were soft to the extent of indentation on palpation. Majority of them were sunken into orbital fossa. Ocular findings were more or less the same in all eyes irrespective of cause of death. Difference was observed in cornea. Cornea lost its transparency with time. As we observed out of 196 dead bodies only 22 (11.22%) bodies had clear cornea.

DISCUSSION: After somatic death certain tissues in the body continues to live for a period of time depending to some extent on the cause of death,^{3,5,8,9} condition of the tissues before death and their oxygen requirement. Since the cornea of eye remains in direct contact to environment and continues to get oxygen for its metabolism, it remains viable for longer period (6hrs) until it is desiccated. This is the basic principle of eye banking and keratoplasty which is the simplest and most effective organ transplantation.

According to WHO^{5,7} (World Health Organization), Corneal blindness is the fourth leading cause of global blindness after cataract, glaucoma and age related macular degeneration. Corneal blindness is a significant problem, treated primarily by corneal transplants! Corneal transplant is a surgical procedure where the diseased or damaged cornea is removed and replaced by a healthy cornea from a deceased donor. However, due to the death of eye donors and lack of public awareness, the problem of corneal blindness in India remains largely unaddressed.

Sincere effort has been made in this study to give major emphasis on two points, one is eye donation and second one is its harvesting, effective utilization as early as possible. Second point also plays vital and equal role. As we have seen only 22 bodies with clear cornea. In this study, it is concluded that post mortem interval has effect in eye especially cornea. This can be borne in mind while harvesting cornea for eye bank services.

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ORIGINAL ARTICLE

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1. Graph & Table showing number of males and females deceased studied for ocular changes:

sex	male	female
	132	64

2. Graph & Table showing cause of death in present study:

Causes of death	No. of deceased
RTA & others	98
Poisoning	22
Hanging	12
Drowning	2
Burns	44
Natural death	14
Assault	4

ORIGINAL ARTICLE

3. Graph & Table showing time since death in present study:

Time since death	0-6 hrs	6-24hrs	<24 hrs	Total
	22	150	24	196

4. Graph & Table showing ocular changes in present study:

Ocular changes	
hazy cornea	162
Pupillary changes	196
Tacchnoir pupillae	30
Low intraocular pressure	196
Cattle track appearance	22

ORIGINAL ARTICLE

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