



## STUDY ON MEIBOMIAN GLAND DYSFUNCTION (MGD) AND SERUM LIPID PROFILE

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**ABSTRACT** **Aim:** To study Meibomian gland dysfunction and serum lipid profile.

**Method-**100 cases MGD were included in study. Thorough clinical examination by slit lamp bio microscope, Tear film break-up time(TFBUT) & Shirmers I test(SIT) was done to diagnose the probable etiology of dry eye and were evaluated for posterior blepharitis and Meibomian gland dysfunction. Serum fasting lipid profile was also seen.

**Result:** More than one third of cases were grade 2 severities of meibomitis followed by grade 1 and grade 3. Half of the patients with grade 3 severity of meibomitis were found to have high cholesterol. High triglycerides were seen in grade 2 and grade 3 severities of meibomitis. High LDL levels were associated with severity of meibomitis.

**Conclusion:** Patients with Meibomian gland dysfunction may have abnormal serum cholesterol, triglycerides and LDL levels.

**KEYWORDS :** Meibomian gland dysfunction, Lipid Profile

## INTRODUCTION

MGD is a chronic diffuse abnormality of Meibomian glands, characterized by terminal duct obstruction and changes in glandular secretion. Meibomian glands contribute to the lipid component of the tear film and their normal secretion prevents premature evaporation of tears from the ocular surface. MGD is classified into low delivery forms (hypo secretory/obstructive) and high delivery forms (hyper secretory/seborrheic). As Meibomian gland secretion is lipid in nature, it is only logical to search for possible link between systemic lipid level abnormalities and MGD.

## METHODS AND MATERIALS

The aim of this study is to study the Meibomian gland dysfunction and serum lipid profile. The methodology of the study included a cross sectional study of 100 patients for a duration of 12 months. The inclusion criteria of the study were cases of Meibomian gland dysfunction (MGD). The exclusion criteria included the following:

- Previous history of any ocular or eyelid surgeries.
- Patients presently on any regular topical medication, including dry eye treatment.
- Patients already on regular anti-hyperlipidemia drugs.
- Cholestatic liver disease.

Thorough clinical examination by slit lamp bio microscope, Tear film break-up time(TFBUT) & Shirmers I test(SIT) was done to diagnose the probable etiology of dry eye and were evaluated for posterior blepharitis and Meibomian gland dysfunction. Serum fasting lipid profile was also seen.

The grading of Meibomian gland dysfunction was as follows

**Table 1: Grading of Meibomitis**

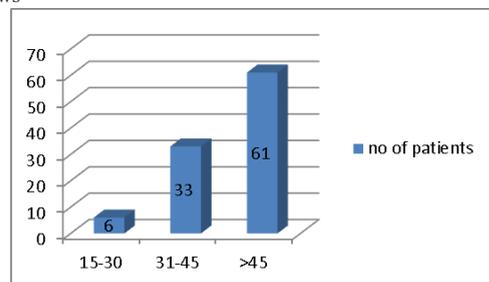
Grade	Expressed meibum
1	cloudy
2	cloudy, particulate
3	toothpaste

- Dyslipidemia is defined as any of the following:
  - TCH level 200-239mg/dl-borderline
  - >240mg/dl-High
  - TG level 150-199mg/dl -borderline
  - >200mg/dl-High
  - LDL level -100-129mg/dl-borderline
  - >130mg/dl-High
  - High level of VLDL ->33mg/dl
  - Low level of HDL -<40mg/dl

## RESULTS

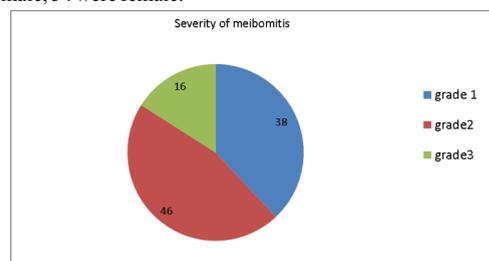
The age and gender distribution classification for the study was as

follows



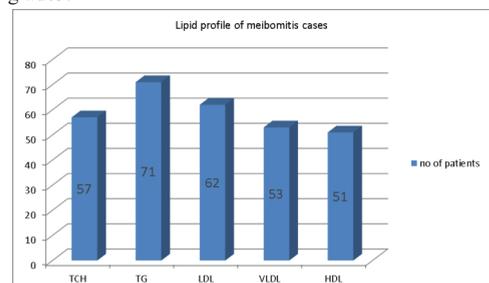
**Figure 1: Age Distribution**

Out of the sample size of 100 patients, 6 patients were of the age group between 15-30, 33 patients belonged to the age group 31-45, and 61 patients were above 45 years. Similarly, on 100 patients, 46 patients were male, 54 were female.



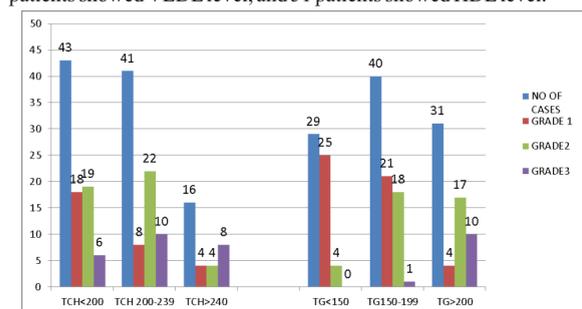
**Figure 2: Severity of Meibomitis**

Out of 100 patients examined, under the severity of meibomitis grading, 16 patients fall under grade 1, 46 fall under grade 2, and 38 fall under grade 3.



**Figure 3: Lipid profile of Meibomitis cases**

Surprisingly, the study showed about 57 patients with high TCH level, 71 patients showed high TG level, 62 patients showed LDL level, 53 patients showed VLDL level, and 51 patients showed HDL level.



**Figure 4: Association of lipid profile with severity of meibomitis cases**

The above graph depicts association of TCH and TG levels with severity of meibomitis cases.

## DISCUSSION

In the last decade, Nichols et al stated that MGD had become recognized as the major cause of evaporative dry eye. More than half of patients are above 45 years followed by 31-45 and 15-30 years. More than half of the patients are males. In a study (Kumar et al), the majority were in the age group of 41-70 years of the age. More than one third of cases were grade 2 severities of meibomitis followed by grade 1 and grade 3. Half of the patients with grade 3 severity of meibomitis were found to have high cholesterol. High triglycerides were seen in grade 2 and grade 3 severities of meibomitis. High LDL levels were associated with severity of meibomitis.

## CONCLUSION

Patients with Meibomian gland dysfunction may have abnormal serum cholesterol, triglycerides and LDL levels.

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