# Frequency of Idiopathic Membranous Nephropathy (IMN) in Different Age Groups in Nephrology Department of Private Hospital

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## Abstract

**Objective:** To see the age distribution of patients of idiopathic membranous nephropathy in general population of Pakistan and prevalence of PLA2R positivity in the cases of idiopathic membranous nephropathy in our population.

**Material and Methods:** The research was done at the Department of Morbid Anatomy and Histopathology; Post Graduate Medical Institution and division of Nephrology, Fatima Memorial Hospital, Shadman Lahore and division of Nephrology, Fatima Memorial Hospital, Shadman Lahore. The duration of study was from September 2018 to December 2019. It was a descriptive cross-sectional study. A total of 83 patients diagnosed with idiopathic membranous nephropathy (iMN) based on clinical history and light microscopy were included in our study.

**Results:** The mean age was 36.91 ±12.97years. The majority of the patients 54.09% (45) were from age 21 to 40 years.

**Conclusion:** The iMN is commonly seen in 35 years to 45 years of age group

**Keywords:** idiopathic membranous nephropathy, glomerulonephritis, nephrotic syndrome

## Introduction

Membranous nephropathy (MN) is one of the main reasons of nephrotic syndrome occurs in adult population in whole world.[1] One-third of patients lose progress to end-stage disease of kidney.[2] The severity of kidney disease is directly related to the degree of proteinuria.[3,4] Studies in Pakistan indicate that membranous nephropathy is the second most common reason for nephrotic syndrome. In one local study MN was 23.50%,[5] and a study conducted in the UK, revealed a prevalence of 26.9%.[6] The term MN indicates early histologic changes recorded in light microscopy: Sub-epithelial deposition of immune complex at the glomerular basement membrane leading to decreased or less cellular penetration.[7] It has two variants on the bases of its etiology. These types are primary or idiopathic Membranous nephropathy(iMN) and secondary (sMN).[8] The latter develops due to a variety of medical conditions, including autoimmune system disease, infections, neoplasia, and drugs.[9] Our study was done to observe the age distribution of iMN in our series of patients diagnosed with MGN.

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## Material and Methods

It was a cross-sectional descriptive study. The research was done at the Department of Morbid Anatomy and Histopathology, Post Graduate Medical Institution and division of Nephrology, Fatima Memorial Hospital, Shadman Lahore and division of Nephrology, Fatima Memorial Hospital, Shadman Lahore. After the taken

approval from Ethical Committee No 8229-31 dated 16-06-2017. The duration of study was from September 2018 to December 2019. It used a non-probability convenience sampling technique. A total of n = 83 biopsies/ paraffin-embedded blocks of patients with membranous glomerulopathy were inclu-ded. The sample size was calculated by following for-mula keeping confidence level equal to 95% and margin of error equal to 10%.

$$n = \frac{Z^2_{1-a/2} \, P(1-P)}{d^2}$$

- $Z^2_{1-a/2}$ = for 95% confidence level = 1.96
- $\alpha$ = level of significance = 5%
- P = Prevalence of membranous glomerulopathy in population
- d = Margin of error = 10%
- n = Sample Size = 83

## Results

Renal biopsy tissues from 83 patients of iMN, were included in the study. The age group ranged was from 14 to 80 years, The mean age was 36.91 ±12.97 years (Table: 1). The majority of the patients 54.09% (45) were from age 21 to 40 years (Table:2). In the age group >50 we had 14 patients (16.8%).

**Table 1:** *Age distribution in cases of Idiopathic Membranous Nephropathy*

| Age group | Frequency (n) | Percentage (%) |
|---|---|---|
| <20 | 06 | 7.2 |
| 21-30 | 25 | 30 |
| 31-40 | 20 | 24.09 |
| 41-50 | 18 | 21.6 |
| 51-60 | 12 | 14.4 |
| >60 | 02 | 2.4 |
| Total | 83 | 100 |

*\*Mean age 36.97+-12.97 years*

## Discussion

iMN mainly affects the people of the young age group. The patients included in our study were more than 13 years of age with the mean age of 36.91 years ± 12.95 (median 35, mode 35). Various studies have been done from different centers around the world that showed the correlation of age in the development of iMN. The study from University of Chicago tried to see the pattern of development of iMN and they concluded that iMN is present frequently in people with the age more than 40 years. They also highlighted that iMN prevalence in children is less, if it is found in patients less than 13 years of age, then mostly hepatitis B virus infection is the underlying cause, or they may have hypersensitivity to thyroid gland.[10] The study from Manchester, United Kingdom, mean age of the development of iMN was in the 4th to 5th decade.[9] Another study which was also done in Manchester, UK, showed mean age 52.6 ± 13.6.[11] Similar study from China revealed that the mean age of the patients of iMN was 40.8 ± 14.6 year.[12] The data from a tertiary care unit of India revealed that patients of iMN had mean age of 41.5 years while in the comparison of the study done by Lasern ,in which mean age of iMN patient was 57.5 years.[13] Mean age in our patietns with iMN was 36.91 years ± 12.95 (median 35, mode 35), close to Asian and Chinese patients and clearly different tan the western population. A different genetic makeup in our population or environmental factors especially pollution may be the responsible factor for the early expression of iMN. The genetic makeup and environmental factors in our country are comparable with that of China and India. A study conducted in China concluded that the environmental factor is one of the main reasons for early development of kidney disease. Particulate matter, which is the unit of measurement of pollution in atmosphere, is high in China and of Particulate matter resembles the calculation of Particulate matter of of Japan and India.[14] This study also quoted the values of particulate matter in UK and USA which is very less than that which occurs in China, japan and India.[15] This study gave the concept that cytokines which are released by the irritation of the respiratory epithelium due to environmental pollution, cause development of iMN.[16,17]

## Conclusion

Majority of patients suffering from iMN in Pakistan are between the ages of 35-45 years of age.

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## Authors Contribution

**AJ:** Conceptualization of Project
**SZ:** Data Collection
**MMR:** Literature Search

**MF:** Statistical Analysis

**UI:** Drafting, Revision
**IH:** Writing of Manuscript