

# COMPARATIVE ANALYSIS OF BIOPSY-PROVEN PRIMARY GLOMERULOPATHIES INCIDENCE IN SOUTH-EAST ROMANIA AND NORWAY: A RETROSPECTIVE STUDY OVER THE PAST TWO DECADES

C Căpușă<sup>1,2</sup>, HP Marti<sup>3</sup>, G Ștefan<sup>1,2</sup>, E Mandache<sup>2</sup>, C Florescu<sup>2,4</sup>, M Gherghiceanu<sup>4</sup>, S Leh<sup>3</sup>, G Mircescu<sup>1,2</sup>

<sup>1</sup> “Carol Davila” University of Medicine and Pharmacy, Bucharest, Romania

<sup>2</sup> “Dr. Carol Davila” Teaching Hospital of Nephrology, Bucharest, Romania

<sup>3</sup> Haukeland University Hospital, University of Bergen, Bergen, Norway

<sup>4</sup> “Victor Babeș” Institute of Pathology, Bucharest, Romania



## BACKGROUND AND AIM

Since there are different screening policies and indications for kidney biopsy among countries<sup>1</sup>, there are limited and inconsistent epidemiological data regarding biopsy-proven glomerular diseases (GP). In addition, changing patterns of glomerulopathies over time were documented in some regions<sup>2</sup>.

Our purpose was to retrospectively investigate the incidence of biopsy-diagnosed primary glomerular diseases and to compare trends over the past two decades in South-East Romania (SE-RO) and Norway, two European countries with different socio-economic status.

## MATERIAL AND METHODS

All native percutaneous kidney biopsies (PKB) examined in a large nephropathology center in Bucharest, covering the South-East region of Romania (estimated coverage of 42% of Romanian population), were evaluated for primary glomerular diseases in a twenty-year period (1995 to 2015). Aggregated data from the Norwegian Kidney Biopsy Registry (NKBR) - the oldest active database in Europe with over 80% national coverage - regarding primary glomerular diseases also were retrieved for the same period. Data are presented as per million population year (pmp/year).

## RESULTS

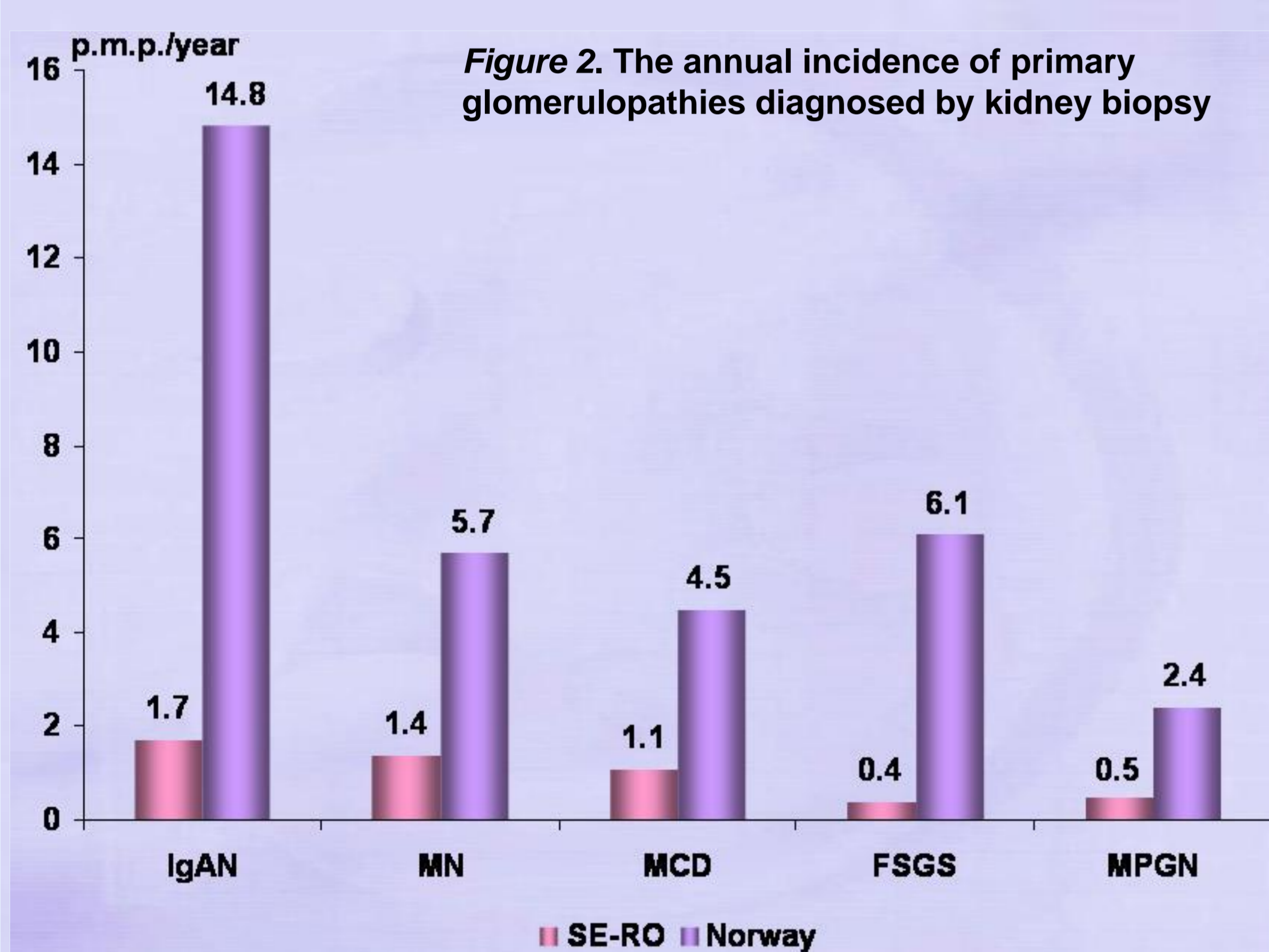
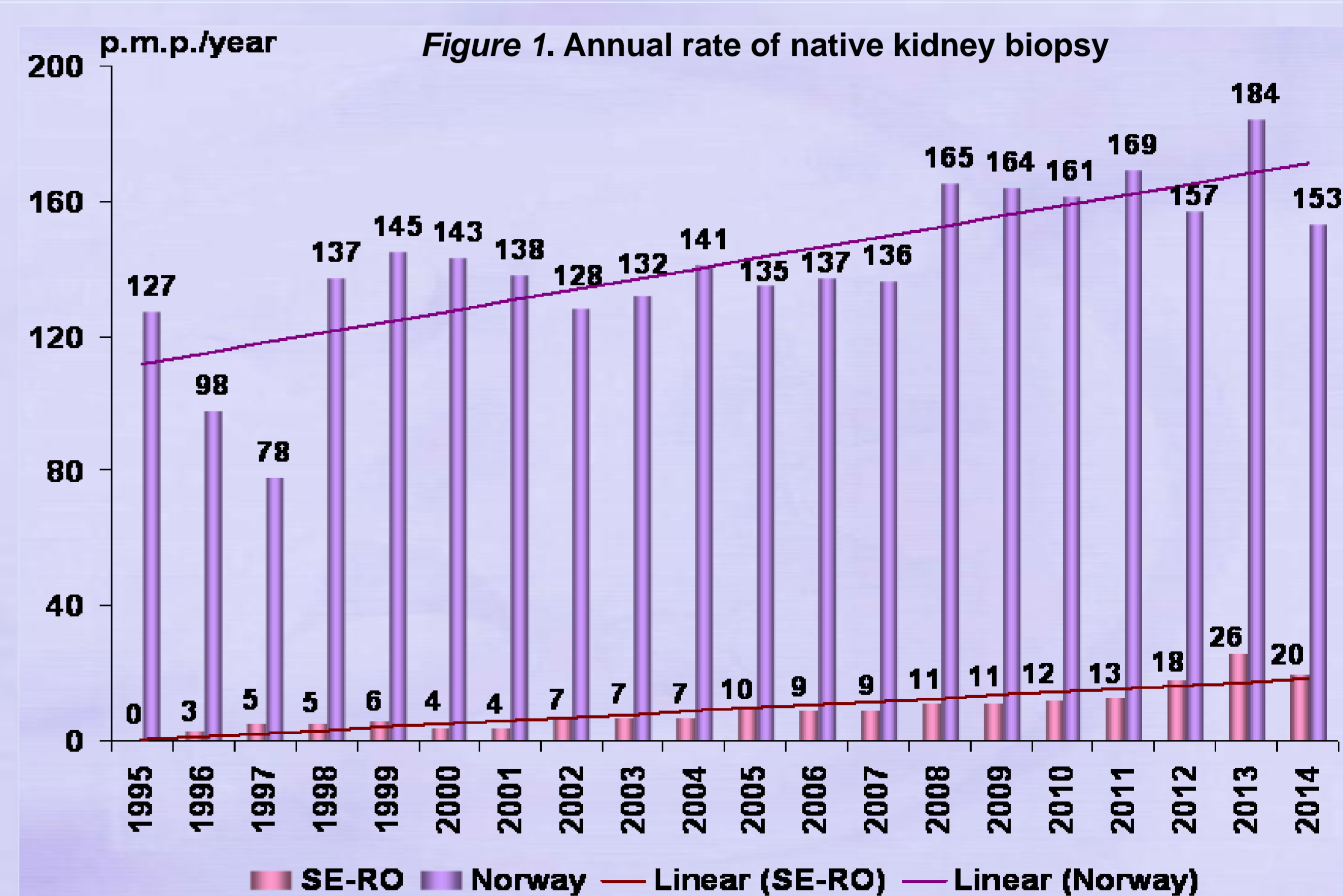
The average incidence of PKB in the SE-RO was 10.9pmp/year, significantly lower than 141.3pmp/year registered by the NKBR. In comparison to other registries the annual average incidence rate in SE-RO was among the lowest, comparable to the other two reports from Romania and Serbia<sup>3,4</sup>, while Norway had the second highest biopsy incidence rate in Europe, after Finland.

The low biopsy rate in SE-RO could be explained by:

- The lower availability of nephropathology laboratories;
- The cautious approach of the Romanian nephrologists who prescribed PKB when they believed that histology could alter the treatment.

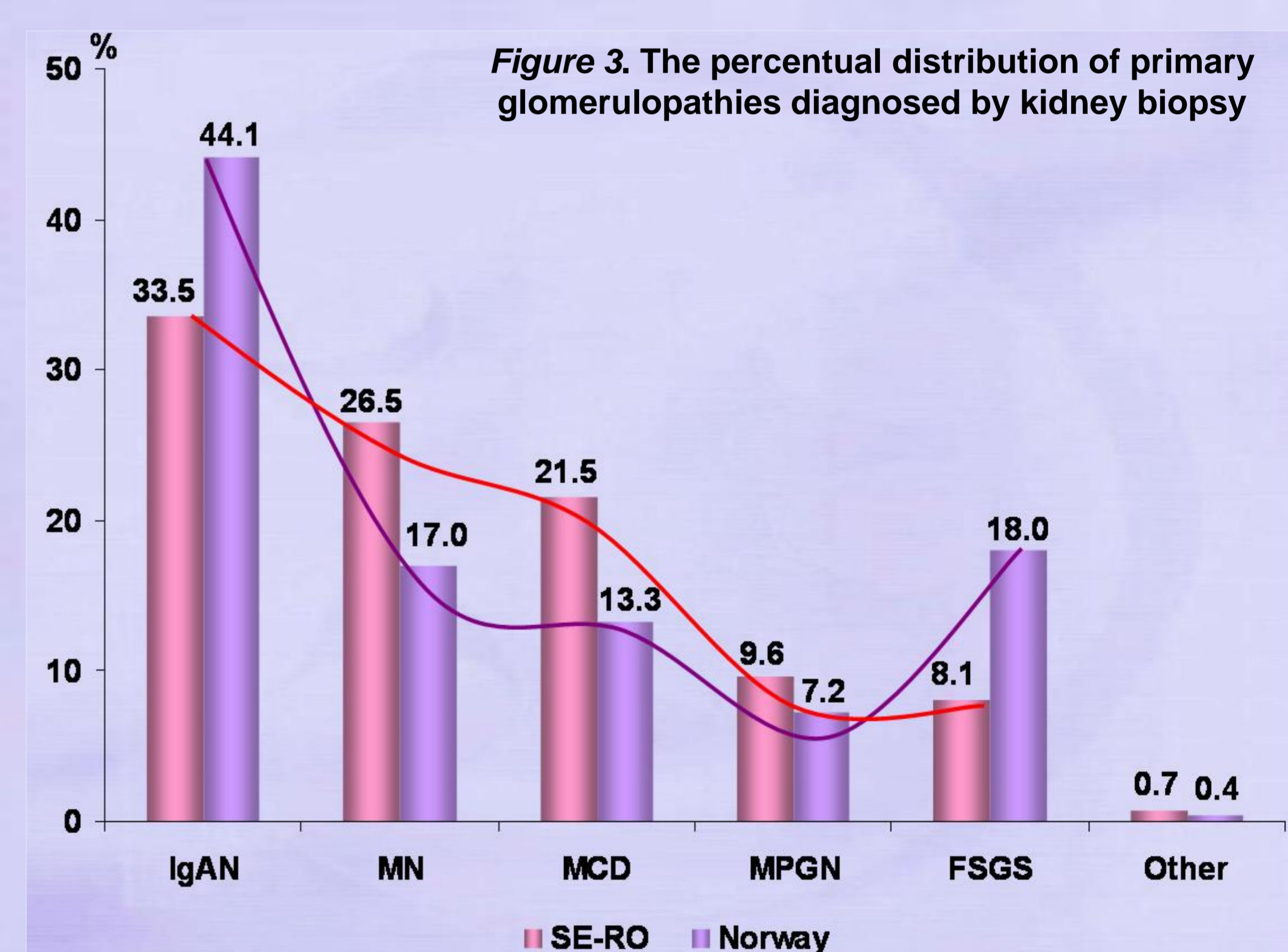
However, once the indications extended in the last decade, the annual rate of PKB in SE-RO steadily increased, reaching a maximum of 26pmp/year in 2013, while it remains in a similar range over time in Norway (Figure 1).

Overall, primary GP was the most common diagnosis in both investigated centers (52.4% in SE-RO and 29.6% in the NKBR), followed by secondary GP, vascular and tubulointerstitial nephropathies (35.1%, 3.9%, and 2.3% versus 26.7%, 10.6% and 7.5% respectively).



The most common primary GP in SE-RO was IgA nephropathy (IgAN), followed by membranous nephropathy (MN), minimal change disease (MCD), membrano-proliferative glomerulonephritis (MPGN), and focal-segmental glomerulosclerosis (FSGS). The ranks were similar in the NKBR reports, generally with a higher incidence (Figures 2 and 3).

The only clear difference was found in the FSGS incidence, which was a more common type of biopsy-proven GP in Norway than in SE Romania.



During the two studied decades, in the SE-RO, the incidence of IgAN has increased slowly to a maximum of 4.3pmp/year in 2013, MN was fairly constant until 2012 when a significant rise to 3.6pmp/year was seen - incidence that remained during the next years, almost similarly with MCD which increased slowly up to 3.2pmp/year in 2013. MPGN and FSGS had relatively low and quite stable incidences (<1.5 and 1pmp/year, respectively).

In Norway, the incidence of IgAN oscillated between 10-24pmp/year with an increasing overall trend, MN varied abruptly with periods of 2-3 years of low incidence (2.9pmp/year) followed by periods of increased incidence (7.3-8.6pmp/year), while MCD showed large variations from year to year (1.1-7.8pmp). FSGS had two peaks of >10.5pmp/year (1999 & 2009) followed by low incidence. MPGN slowly decreased to 0.5pmp/year in 2011, with a later 10-fold rise.

## CONCLUSIONS

The PKB frequency is notably lower in SE-RO than in Norway, probably due to the low rate of referral to nephrologists, at least in the non-symptomatic initial disease and, possible, to a more conservative approach in the daily nephrology practice in Romania.

In both countries, the most common primary glomerulopathy was IgAN, followed by MN and MCD. Over the past two decades, the incidence of these three histological patterns increased in the South-East region of Romania, whereas more or less fluctuated in Norway.

Collecting data regarding kidney biopsies in a national Romanian registry could be a useful tool in the future to gather data on these rather rare diseases.

## REFERENCES

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