



Positive Proteinuria Postpartum: To your Trocars, Set, Biopsy!

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Abstract

Fourteen biopsies were performed postpartum, mean time 4.8 months (1-12), the indication for renal biopsy was proteinuria in 100% of patients with two patients with nephrotic syndrome, renal failure was present in 7 patients and hematuria in 6 patients. 4 patients had extrarenal signs (arthralgia in 2 patients and RAYNAUD's syndrome in 2 patients) absence of extrarenal signs in the rest of the patients. Diuresis was retained in 12 patients and anuria in 2 patients. The diagnosis was segmental and focal hyalinosis (HSF) in 5 patients or 35.7%, extramembranous glomerulonephritis in 2 patients or 14.3%, chronic glomerulonephritis in 2 patients or 14.3%, acute glomerulonephritis in 1 patient or 7.14%, membrano-proliferative glomerulonephritis in 1 patient or 7.14%, minimal glomerular lesion in 1 patient 7.14%, vasculitis in a patient 7.14%, 1 patient with shepherd's disease or 7.14%.

The evolution was marked by complete remission in 5 patients, partial remission in 2 patients, 5 patients progressed to end-stage chronic renal failure with hemodialysis, one patient in chronic renal failure with stationary renal function, one patient treatment in progress.

Keywords: Preeclampsia; Proteinuria; Hematuria; Renal Failure; Renal Biopsy

Abbreviations

HSF: Segmental and Focal Hyalinosis; MFIU: Fetal Death in Utero; BU: Urine Strip; PBR: Renal Biopsy Puncture; GEM: Extramembranous Glomerulonephritis; GNC: Chronic Glomerulonephritis; GNA: Acute Glomerulonephritis; GNMP: Membranoproliferative Glomerulonephritis; LGM: Minimal Glomerular Lesions

Introduction

Follow-up during pregnancy, by taking blood pressure and taking a urine strip (BU), can be an opportunity to reveal kidney disease that could persist even after childbirth.

Proteinuria may be the only indicator of renal pathology before a reduction in glomerular filtration rate (GFR), with routine urine examinations during pregnancy may represent an opportunity for early diagnosis [5].

Continuous proteinuria identified in the postpartum period may be a manifestation of glomerular involvement secondary to pre-eclampsia or primary kidney disease. Data from small cohort studies suggest that six months after delivery, proteinuria secondary to pre-eclampsia resolved in more than 95% of women [1]. However, women with persistent proteinuria following pre-eclampsia have high rates of underlying kidney disease.

The objectives of the study were to characterize the clinical presentation of persistent kidney disease after pregnancy, to report our renal biopsy experience in affected patients, and to document histological lesions and longer-term renal prognosis.

Materials and Methods

We collected retrospectively, by means of hospitalization registers within the nephrology department CHU HASSAN II of Fez; 14 patients who had postpartum proteinuria that persisted beyond 3 months.

We included all patients who had persistent postpartum proteinuria between 2011 and 2020 in the CHU HASSAN II NEPHROLOGY Department of FES. These cases identified over the period from January 2011 to December 2020 were followed by the nephrology department of the CHU HASSAN II of Fez. we have substantially retained, a cut-off of 300mg/24H define a positive proteinuria and 3 months for the delay.

We excluded all biopsied patients beyond 1 year after delivery.

Data collection

Many data were collected retrospectively in terms of

- **Sociodemographic:** Age, history of miscarriage, MFIU or preeclampsia, number of pregnancies/parity, primiparity, presence of associated comorbidities (diabetes, hypertension, heart disease...).
- **Clinical-biological:** Blood pressure figures, volume evaluation, diuresis, albuminemia, proteinemia, urea, creatininemia, proteinuria of 24H, analysis of urinary sediment.
- **Histological (renal biopsy puncture):** Absence of renal recovery beyond 3 months with positive proteinuria with or without nephrotic syndrome.

Statistical analysis

The analytical processing was done using Microsoft Excel software.

Results

Socio-demographic

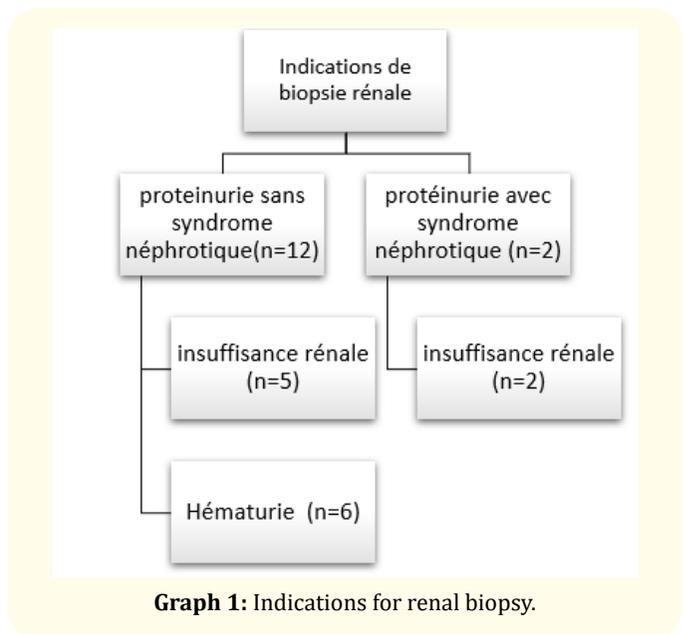
The Average Age of our population is 28.9 ± 6.74 years [19-43] and mainly interesting the age group of 20-30 years, The majority

of our patients were multiparous with a rate of 86%, against 14% of nulliparous

The most prominent risk factors in our series were represented by the ATCD of Miscarriage and the presence of chronic hypertension with a similar percentage of 28% followed by the presence of Preeclampsia in 2 patients 14% no ATCDs There is hyperthyroidism in one patient and diabetes in another.

Clinical data

- Fourteen biopsies were performed in our study with an average delay: 4.8 months (extreme 1 to 12 months)
- Diuresis was retained in 12 patients while anuria was retained in 2 patients: Having benefited from a renal biopsy puncture immediately.
- Four patients had extrarenal signs of arthralgia in two patients and Raynaud’s syndrome in two other patients.
- The indication for renal biopsy in our series (Chart I).
- proteinuria in 100% of patients with two patients with nephrotic syndrome
- Renal failure was present in 7 patients.
- Hematuria in 6 patients



Graph 1: Indications for renal biopsy.

Histological data

The histological results of our study: were segmental and focal hyalinosis (FSH) in 5 patients with a percentage of 36%, extra membranous glomerulonephritis (GEM) in 2 patients, and chronic glomerulonephritis (CNG) in 2 patients.

While acute glomerulonephritis (AMB), membranoproliferative glomerulonephritis (GNMP), minimal glomerular lesions (LGM), vascular nephropathy, and IgA nephropathy in equal parts in a single patient

Evolution and prognosis

The clinical course of our patients was marked by complete remission in 5 patients, and partial remission in 3 other patients.

While five patients progressed to end-stage renal disease, four of whom were put on hemodialysis on extra membranous glomerulonephritis (GEM), chronic glomerulonephritis (CNG), membranoproliferative glomerulonephritis (GNMP), vascular nephropathy, only one patient was lost to follow-up.

Discussion

Clinical diagnosis

- If we compare concomitantly the data collected in our series with the data from the literature, there is a clear similarity with the Turkish study unverdi and [4] in terms of risk factors objectifying hypertension in 28% of patients unlike the French study domenger, *et al.* [2].
- For the biopsy time we were the earliest to biopsy with an average time of 4.8 unlike the English study the average time was 24 months with extremes of 9-36 months.
- Proteinuria was present in almost all patients in all series and 100% In our study and the Turkish study [4]. For renal failure was present in 50% of patients while the French study presented only 11%.
- While hematuria is present in almost all patients with a percentage of 81% unlike our series of 42% and the English study [3] of 18%.

	F. C Ramsden [3] 2019 (London, England)	S. Unverdi [4] 2010 (Ankara, Turkey)	C. Domenger [2] 2015 (Poitiers France)	Our study
Number	45	14	27	14
Risk factors	NO	HTA: 28.5% (n = 4)	HTA: 22% (n = 6)	HTA: 28.5% (n = 4)
	12 (9-36 months)	6.5 (5-7 months)	11-14 months	4.8 (1-12)
Protéinurie	77% 9%: PN 91%: PNN	100% 7%: PN 93%: PNN	97%: 22% PN 78% PNN	100% 14.3% PN (n = 2) 85.7% PNN (n = 12)
Renal failure	13% (n = 6)	36% (n = 5)	11% (n = 3)	50% (n = 7)
Hématurie	17% (n = 8)	57% (n = 8)	81% (n = 22)	42.8% (n = 6)

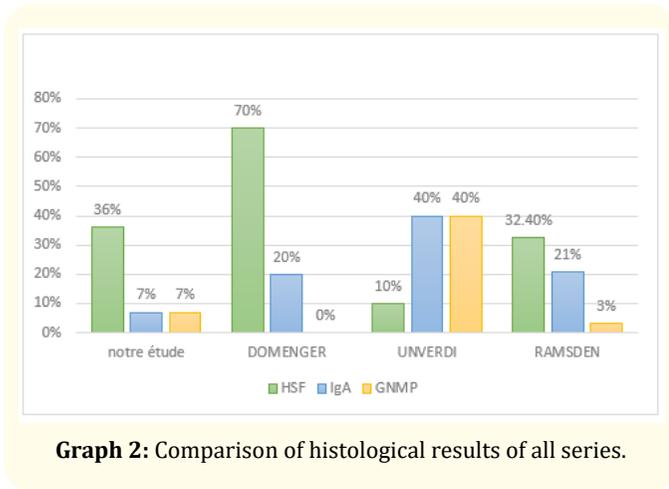
Table 1: Table comparing the clinical-biological criteria of different studies.

Histological diagnosis

If we look more at histological diagnosis in the literature we note that FSH is noticeably predominant The high incidence of de novo histological renal diagnoses in our study is consistent with a published multicenter series [6] of 75 women who benefited from PBR in postpartum for kidney disease identified during pregnancy.

Two-thirds of women (68%) had primary kidney disease and a diagnosis of HSF is also the most common diagnosis. in all series: The French study [2] 70% HSF (n = 19), 32% of the English study and 36% in our study unlike the Turkish HSF study represents only 10% of cases.

Followed by nephropathy a IgA qui represents the histological diagnosis most frequently found in the Turkish study with a percentage of 40% against 25% for the French study and 20% The English study while for our series it represents only 7% Diagnosed in a single patient.



Graph 2: Comparison of histological results of all series.

Evolution and prognosis

During the follow-up of our patients we noted that 5 of our patients or 33% progressed to terminal renal failure of which 4 were put on hemodialysis. For the English study 6 patients also progressed to end-stage renal failure or 18% of which 5 were transplanted and a patient put on hemodialysis with a similar percentage 18% of patients in the French series progressed to end-stage renal failure.

Conclusion

Patients with preeclampsia should be evaluated postpartum for persistent proteinuria, haematuria or renal failure. Patients with persistent proteinuria should be monitored and examined and referred to nephrology services.

The proportion of women with postpartum proteinuria who progressed to ESRD underscores the need for targeted care for this high-risk group.

The results of our study confirm that postpartum renal biopsy may reveal kidney pathology that may pre-exist or develop during pregnancy, with a high rate of progression to ESRD in these young women.

Conflict of Interest

The authors state that there are no conflicts of interest in relation to this article.

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