

# Non-Occlusive Mesenteric Ischemia in hemodialysis patients. Results of managed conservatively.

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## INTRODUCTION

- **Mesenteric Ischemia** affects the blood flow of a bowel segment.
- The **most frequent** type in patient undergoing hemodialysis (HD) is **Non Occlusive Mesenteric Ischemia (NOMI)**, which results from circulatory failure in the absence of a thrombosis.
- The frequency of NOMI in these HD patients has **INCREASED** in the last years.
- This circumstances is due to **SEVERAL FACTORS**: 1.- Improve in age that our patients started Renal Replacement Therapy (HD or PD), more of them older 70 years; 2.- Improve in several diagnosis technics. 3.- Improve in better treatment of End-Stage Kidney Disease.
- Nevertheless, the main reason is possibly in **association with increasing of MANY COMORBIDITIES FACTORS** of our HD patients, that **conditioning their outcomes and increasing their mortalities.**

**AIMS OF STUDY**  
DESCRIBED THE CHARACTERISTICS AND EVOLUTION OF OUR PATIENTS IN HEMODIALYSIS WITH NON-OCCLUSIVE MESENTERIC ISCHEMIA

**General Characteristics**  
Incidence 1.6 patient per year

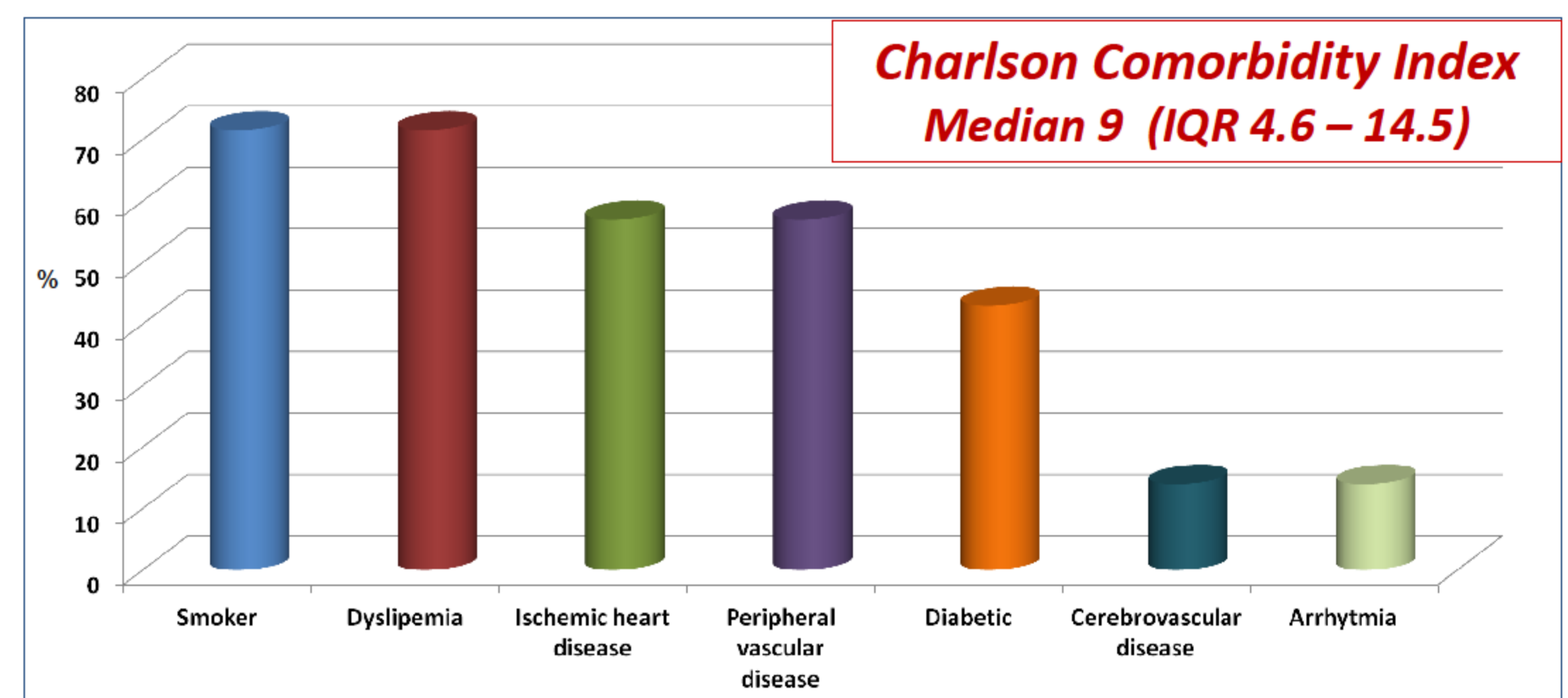
Patients N.O.M.I.	N = 7
Mean age (years)	65.4±10 (52-80)
Sex (males)	4 (57%)
Chronic Kidney Disease Etiology:	
- Unknown	4 (57%)
- Diabetic nephropathy	1 (14%)
- Systemic disease	2 (29%)
Median time in HD (month)	52 (IQR 2-77)
Median time each session	250 minutes (3 session week)
Vascular access (catheter)	5 (71.5%)

## PATIENTS AND METHODS

- **PATIENTS:** HEMODIALYSIS PATIENTS IN OUR NEPHROLOGY DEPARTMENT.
- **PERIOD OF STUDY:** JANUARY-2009 TO DECEMBER-2015.
- **NUMBER OF PATIENTS:** SEVEN PATIENTS WITH NOMI.
- **CHARACTERISTICS TO EVALUATE:** Baseline Characteristics (age, sex, etiology of renal disease, time in HD, index comorbity). Physical manifestation. Laboratory studies. Evolution (hospitalization, treatment, survival).
- **STATISTICS ANALYSIS:** Cuantitative variables: median and interquartile range. Cualitative variables: frequencies. Mean comparisons: X2 test for cuantitatives variables: T Student s for cualitatives variables (normal distribution) and Mann Whitney s test (no parameter distribution). Survival: Kaplan-Meier s survival curves. Statistically significant values: p<0.05.

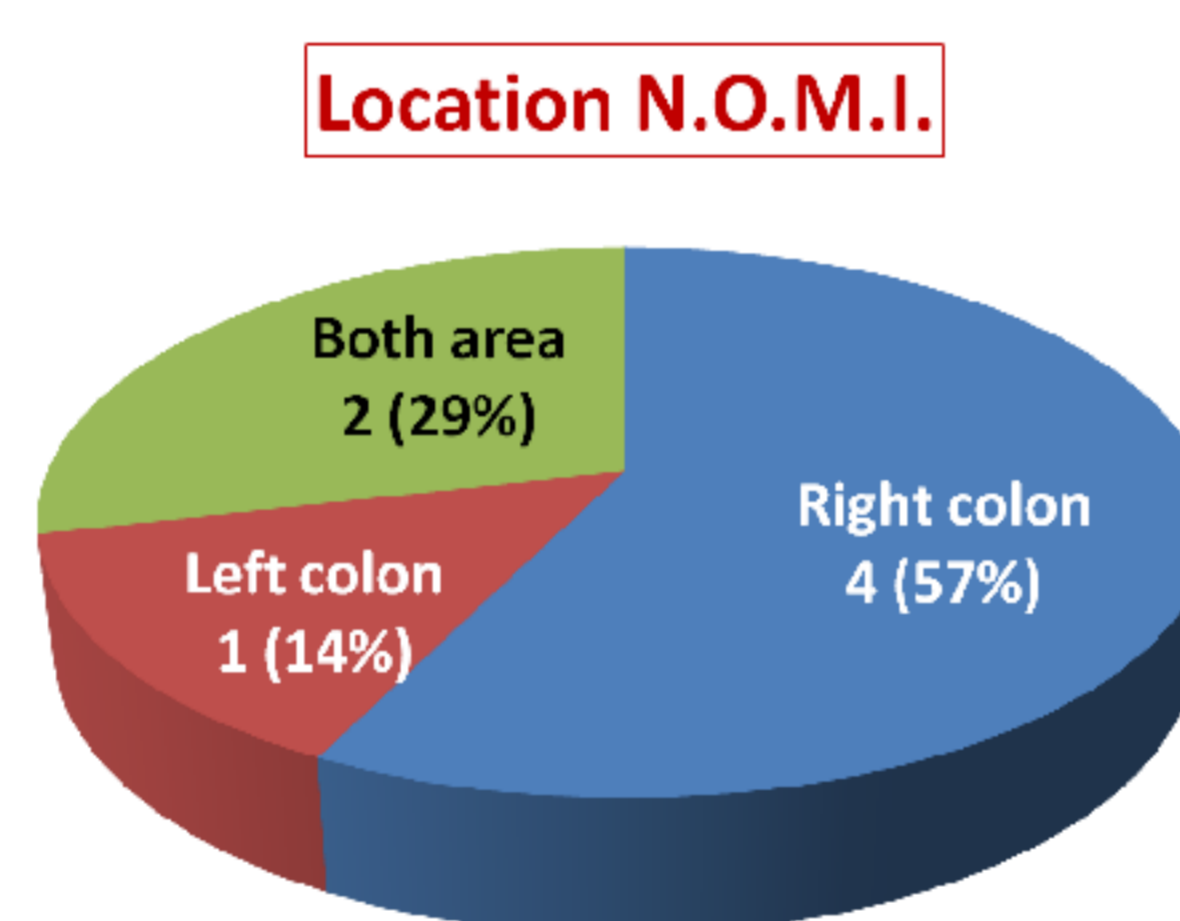
## CASE CLINIC

- 67 years old man, started HD therapy only 3 months previous this pathology event.
- Pathology history: Hypertension. Diabetic. Cerebrovascular disease. Ischemic heart disease. ESRD due to unknown etiology.
- Physical manifestations: Right abdominal pain, started 6 hour after the last dialysis session.
- Physical examinations and laboratory studies: BP 86/45 mmHg, leukocytosis 24.410 count/ mL (89.3%N), serum LDH 404 U/L, serum CK 70 U/L, serum CRP 77 mg/L.
- Abdominal CT: Diffuse thickening of right colon wall, splenic angle and transverse colon. No extraluminal air or in porta system, without detectable mesenteric arterial occlusion.
- Diagnosis: Ischemic colitis due to hypotension in patient with systemic atheromatosis.
- Treatment: Diet during 5 days plus intravenous liquid plus antibiotics.
- Follow-up: Continued in HD.



## Manifestations, Laboratory studies and Diagnostic Imaging Characteristics

Patients N.O.M.I.	N = 7
Abdominal pain:	7 (100%)
- Intradialysis	1 (14%)
- First 12 hours post last HD session	6 (86%)
Rectal bleeding	1 (14%)
Fever	4 (57%)
Vomiting	2 (28.5%)
Dyarrhea	2 (28.5%)



Blood Pressure (mmHg)	Systolic BP * Diastolic BP *	95 (IQR 86 – 100) 60 (IQR 42 – 90)
Analitics value	Hemoglobin (g/dL)	12.5±1.2 (11.3 – 14.3)
	Leukocyte (count/μL) *	22350 (6920 – 27200)
	Serum CRP (mg/L) *	292 (95 – 456)
	Serum Creatinine Kinasa (U/L)	42±18 (32 – 70)
	Serum LDH (U/L)	217±73 (135 – 350)
Diagnostic Imaging	Abdominal Computed Tomographic	6 (86%)
	Colonoscopy (history of rectorrhagia)	1 (14%)

\* Median values

## Hospitalization characteristics (median values)

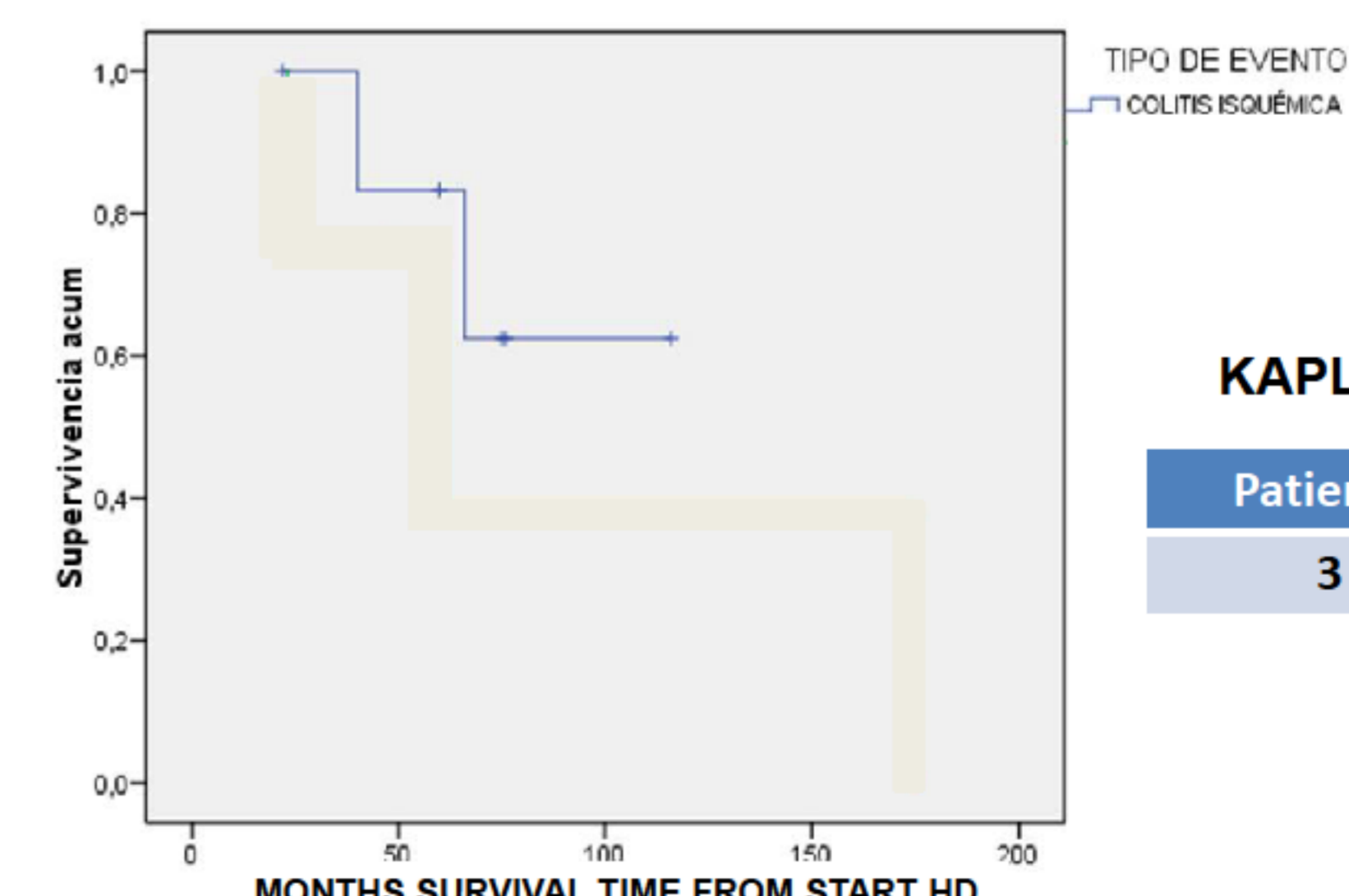
Patients N.O.M.I.	N = 7
Conservatively treatment	7 (100%)
Median hospitalization (days)	10 (IQR 4 – 30)
Median duration diet (days)	6 (IQR 5 – 23)
Median antibiotics treatment (days)	8 (IQR 6 – 20)

## FINAL EVOLUTION (Median follow up 74 months (SD 42))

Patients N.O.M.I.	N = 7
Mean survival (month)	15±16 (IQR 1 – 39)
Died during N.O.M.I.	2 / 7 (28.5%)
Died post – N.O.M.I. (in follow up) *	2 / 5 (40%)
Ethiology exitus:	
- Rectorrhagia and thoracic pain	1 (14%)
- Sepsis *	1 (14%)
- Withdrawal dialysis (*1 in follow up)	2 (28.5%)
Continuing in dialysis	3 (43.5%)

## CONCLUSIONS

- **NON-OCCLUSIVE MESENTERIC ISCHEMIA IN HEMODIALYSIS PATIENTS WAS A SEVERE PATHOLOGY.**
- **THIS PATOLOGY WAS ASSOCIATED WITH TWO IMPORTANT EVENTS:**
  1. **HYPOTENSON IN LAST DIALYSIS SESSION.**
  2. **HISTORY OF CARDIOVASCULAR DISEASE.**
- **THE MORTALITY WAS DETERMINED BY MULTIPLE COMORBIDITIES FACTORS.**
- **NEVERTHELESS HIS HIGH MORBID-MORTALITY, TREATMENT CONSERVATIVELY IS POSSIBLE AND SAFE IN SOME PATIENTS**



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