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Urinary pH as a target in the management of lithiasic patients in real-world practice: monitoring and nutraceutical intervention for non-lithogenic pH range

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INTRODUCTION AND OBJECTIVE

pH influence on the formation and growth of certain type of stones is well-known and stablished. Low urine pH values promote uric acid (UA) stones, and those in the higher range do with calcium oxalate (CO) / calcium phosphate (CP) ones. Urine pH normalization helps preventing stone formation.

The objective of the study is to assess the effectiveness of the joint use of a pH meter in combination with nutraceuticals in restoring the urinary pH balance of patients with medical history of UA or CP/CO stones in real-world practice.

METHODS

Interventional, prospective, open-label study, with 2 arms, in 143 lithiasic patients.

N= 78 (45,5%)
Acidifier group
pH at baseline > 6,2
history of calcic lithiasis

1 capsule/12hours
Lit-Control®-pH Down

acidifier
Lit-Control® pH Down

substance	amount/capsule	mechanism
L-methionine	500 mg	decreases urinary pH
Phytate	170 mg	inhibits crystallization of CaOx & $CaPO_4$

N= 65 (54,5%)
Alkalinizer group
pH at baseline < 5,5
history of uric lithiasis

1 capsule/12h
Lit-Control®-pH Up

alkalinizer
Lit-Control® pH UP

substance	amount/capsule	mechanism
Magnesium-Potassium-Citrate	400 mg	calcium oxalate inhibitors increase urinary pH inhibit crystallization
Theobromine	150 mg	inhibit crystallization

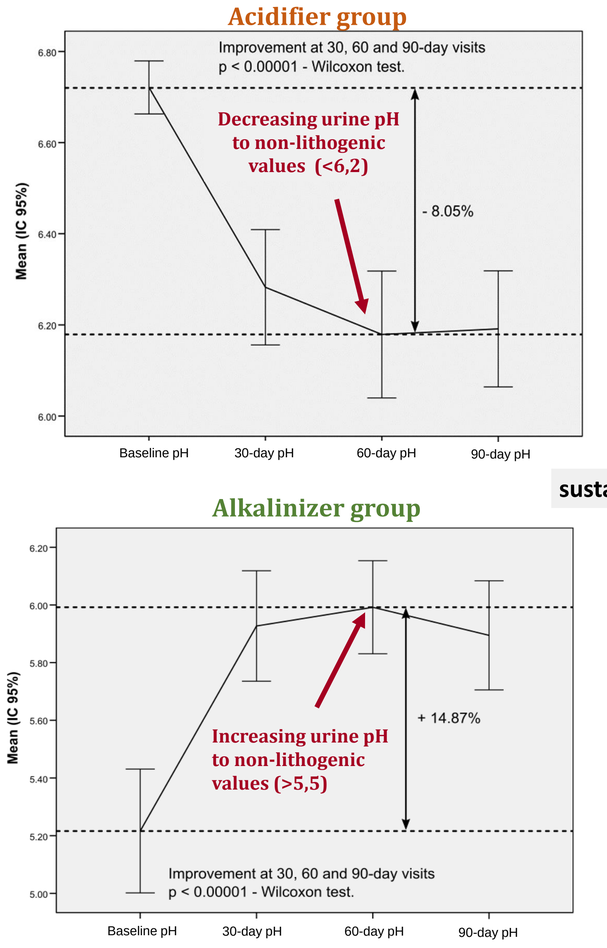
Visits

- Baseline
- 30 days
- 60 days
- 90 days

Parameters

- Urinary pH
- Type of therapy
- Compliance
- Self-reported renal colic events

RESULTS



sustained over time

Figure 1. Mean of urinary pH at baseline and after 30, 60 and 90 days of dietary supplements intake.

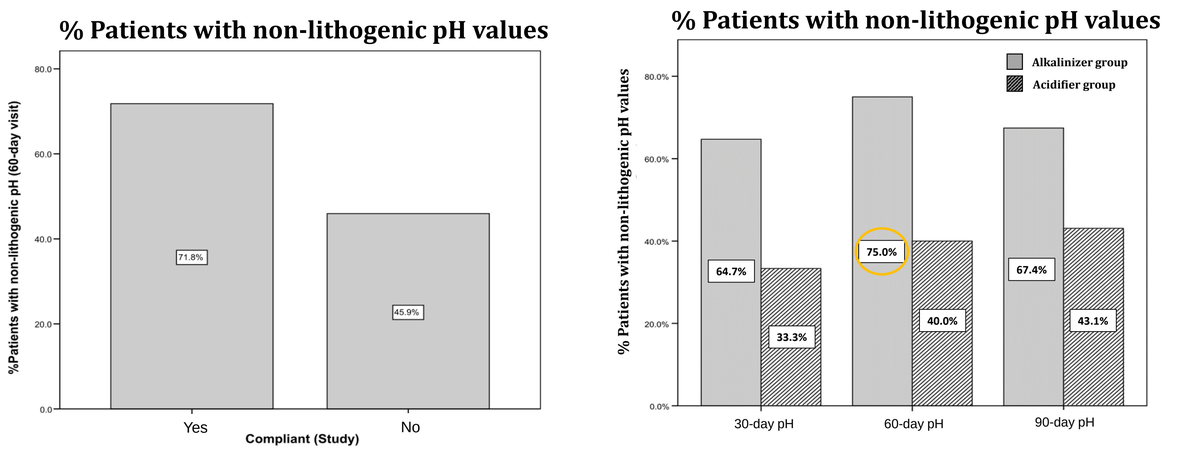


Figure 2. Percentage of patients with non-lithogenic pH values depending on whether they are compliant with dietary supplements .

- **75% of patients in the alkalinizer group reach non-lithogenic urine pH values in 60 days of treatment**
- **The non-lithogenic pH at 90 days (HR: 0.428, 95% Confidence interval [CI]: 0.193-0.947) and compliance at 60 days (HR: 0.428, 95% CI: 0.189-0.972) were independently associated with colic complaints-free survival**

CONCLUSION

In patients with medical history of lithiasis, monitoring of pH in combination with the product may be useful in maintaining non-lithogenic pH values, yielding very high ratios of success specially in compliant patients. Besides this main outcome, a reduction in self-reported colic complaints associated to pH balance was also observed.

The nutraceuticals were shown to be safe and well tolerated (in more than 90% of the cases, the investigators reported a good or very good tolerance), registering 8.84% of adverse events (13/147 patients), none of them serious.

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