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A multidisciplinary stepwise approach for the treatment of refractory chronic pain in ADPKD patients: initial results

Niek F. Casteleijn¹, Maatje D.A. van Gastel¹, Peter J. Blankestijn², Joost P.H. Drenth³, Gerbrand J. Groen⁴, Rosa L. de Jager², Anna M. Leliveld⁵, Ruud Stellema⁴, Andreas P. Wolff⁴ and Ron T. Gansevoort¹

1: Dept of Nephrology, UMCG, Groningen; 2: Dept of Nephrology and Hypertension, UMCU, Utrecht; 3: Dept. of Gastroenterology and Hepatology, Radboud UMC, Nijmegen; 4: Dept of Anaesthesia, UMCG, Groningen; Dept of Urology, UMCG, Groningen. The Netherlands. (n.f.casteleijn@umcg.nl)

Background

- Chronic pain affects more than 60% of ADPKD patients and is refractory in some cases
- Pain caused by pressure by the enlarged kidney and/or liver on adjacent organs is predominantly relayed via the celiac plexus and splanchnic nerves, whereas pain caused by distension of the renal capsule is relayed via sensory nerves around the renal artery to the aorticorenal plexus

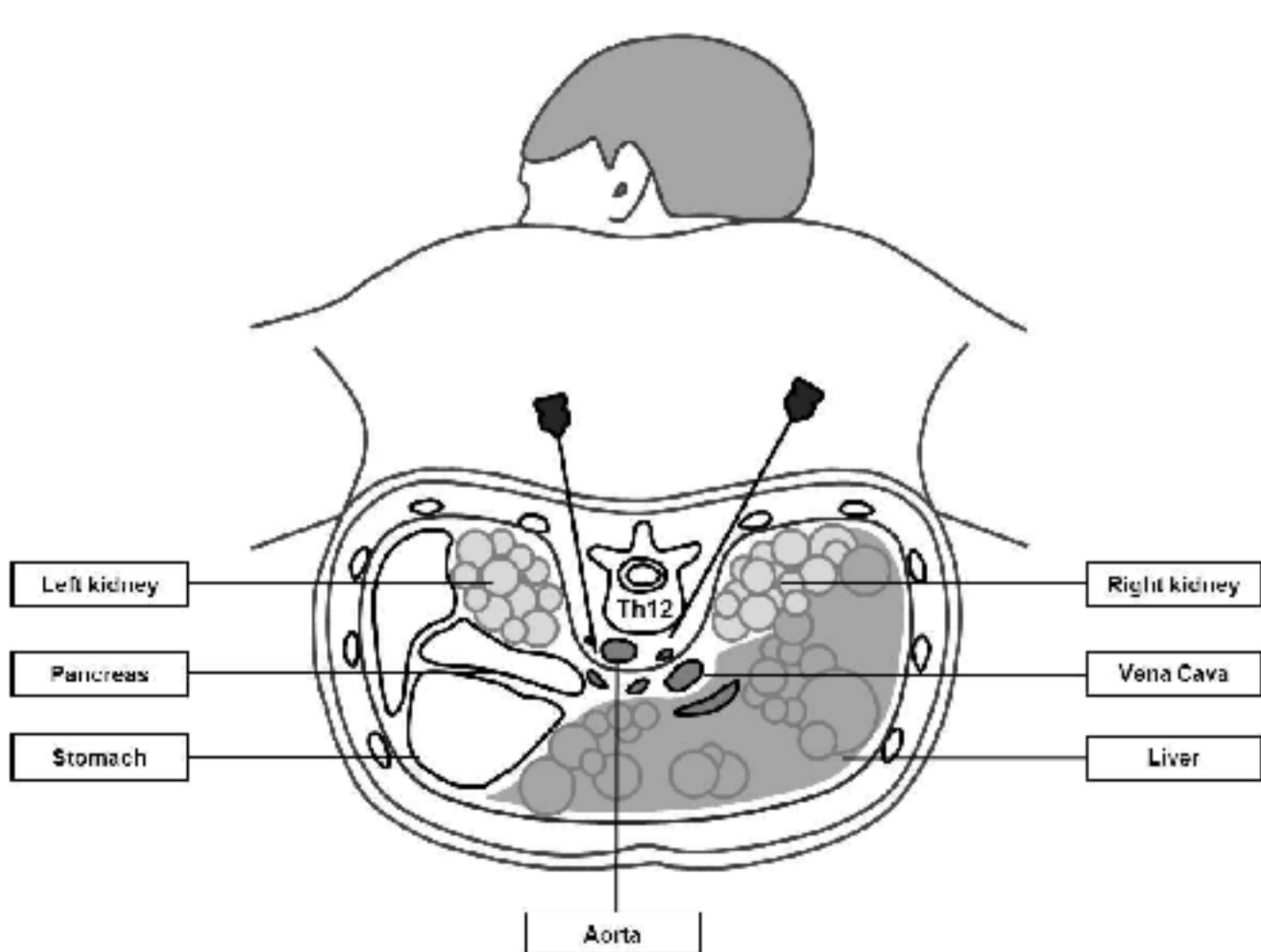
Study aim

- To investigate whether a multidisciplinary stepwise approach protocol of sequential nerve blocks is effective in pain relief in ADPKD patients with refractory chronic pain

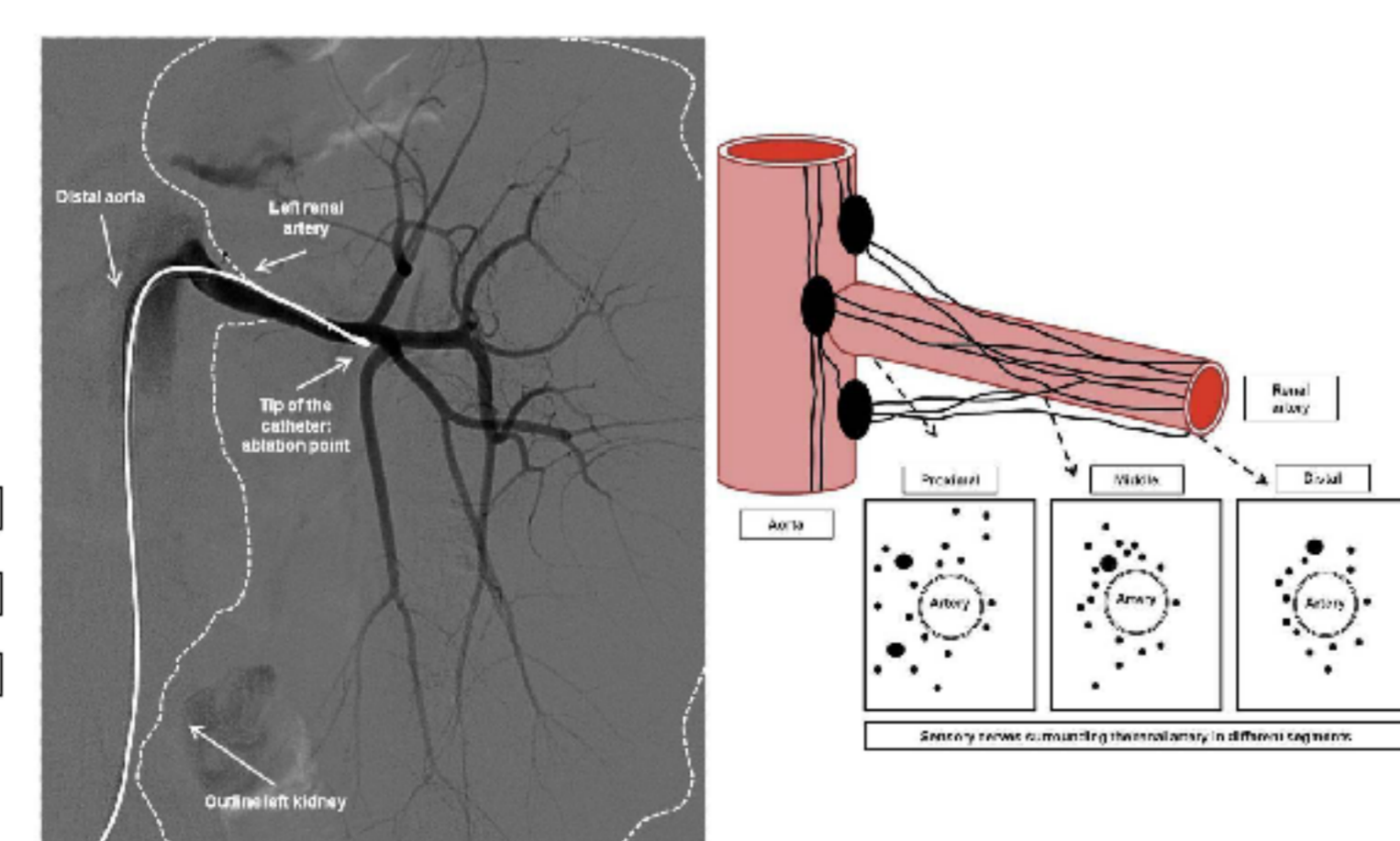
Methods

- Patients were eligible if they had refractory chronic ADPKD-related pain, defined as pain for ≥ 3 months with a reported intensity of $\geq 50/100$ on a Visual Analogue Scale (VAS), used opioids and had responded insufficiently to previous analgesic therapies
- In a multidisciplinary setting it was assessed if pain was ADPKD-related and a MRI was performed
- In case pain appeared ADPKD related a temporary celiac plexus block was performed
- When substantial pain relief was achieved (i.e. VAS score $\leq 30/100$), we assumed that the pain was caused by pressure on adjacent organs, and patients were scheduled for a long-term splanchnic block at the moment the pain recurred
- In case no pain relief was achieved, it was assumed that the pain was secondary to distension or local irritation of the renal capsule, and catheter-based renal denervation was performed

Celiac block



Renal denervation



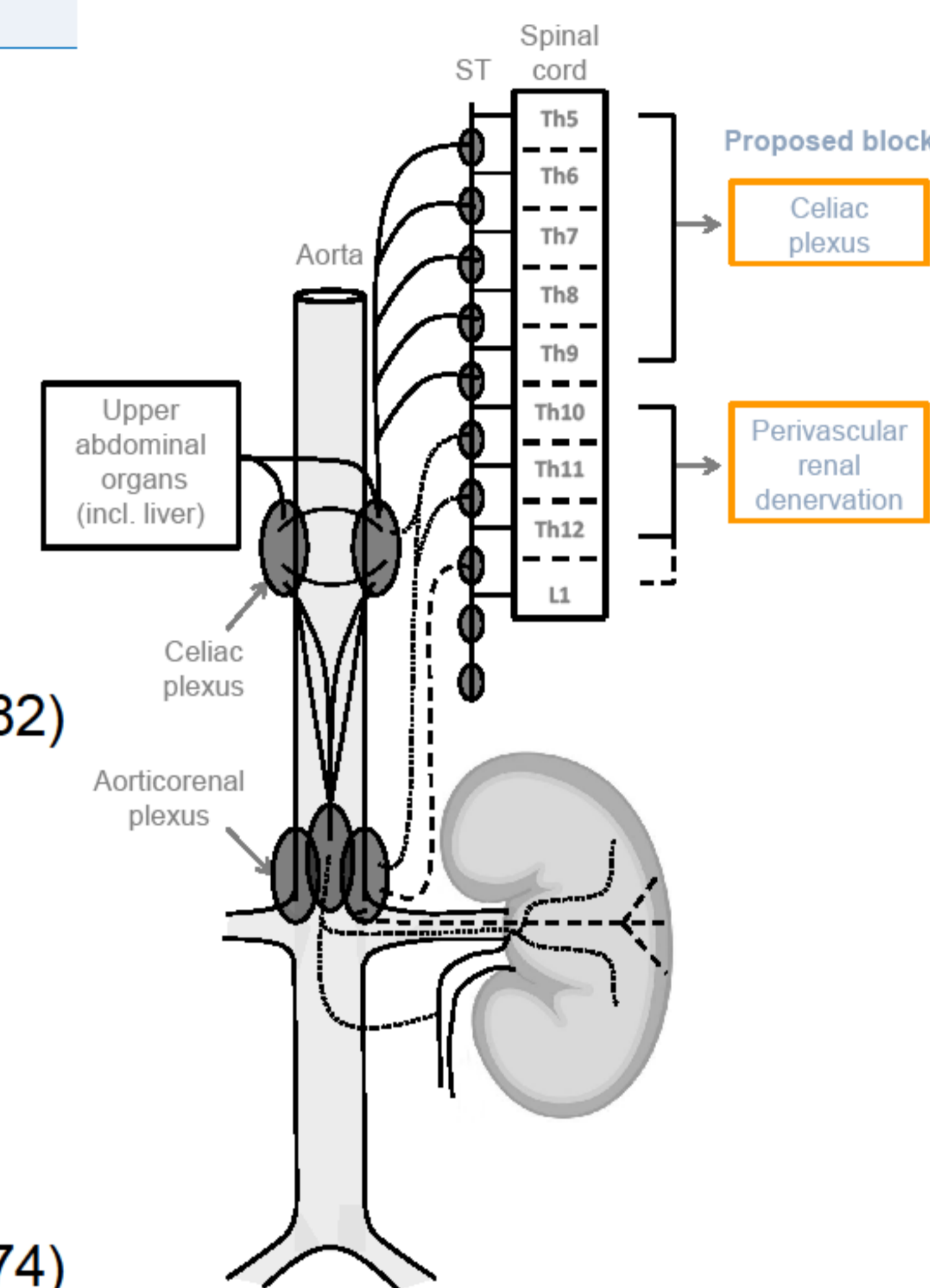
Conclusion

- Our data indicate that a multidisciplinary stepwise treatment protocol, that applies sequential nerve blocks, is effective in obtaining substantial pain relief in ADPKD patients with chronic refractory pain

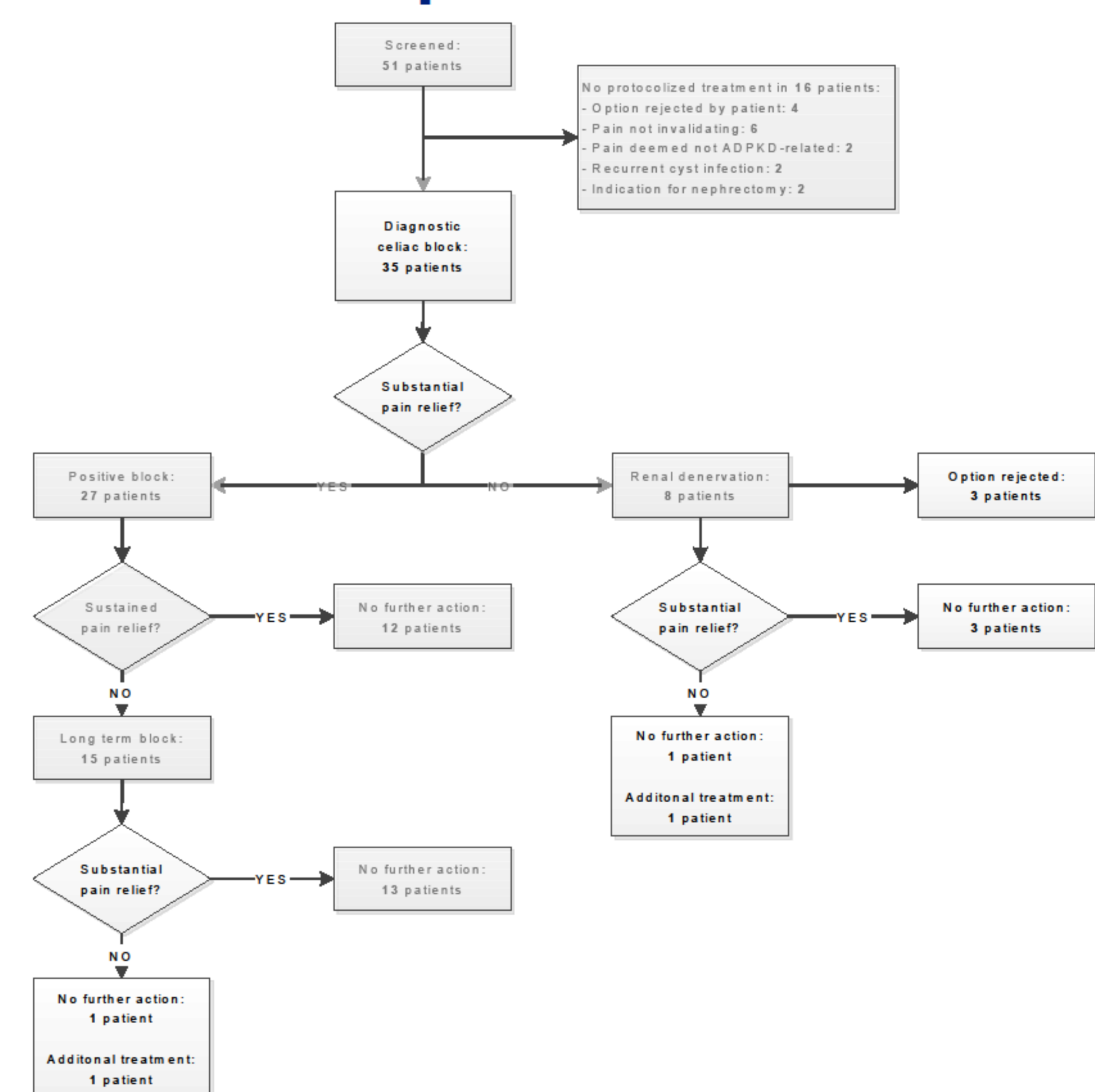
Patient characteristics

| | N=35 |
|----------------------------------|------------------|
| Female sex, % | 74.3 |
| Age, yrs | 49 (43-57) |
| Presence of RRT, % | 5.7 |
| History of | |
| - Urinary tract infection, % | 65.7 |
| - Macr. Hematuria, % | 60.0 |
| - Renal stones, % | 14.3 |
| - Cyst infection, % | 25.7 |
| Length, m | 1.73 (1.69-1.82) |
| Weight, kg | 84 (73-94) |
| eGFR, mL/min/1.73m ² | 53 (34-70) |
| Renal pain score, 0-100 | 60 (50-80) |
| Liver pain score, 0-100 | 0 (0-50) |
| Duration of pain, yrs | 7 (4-18) |
| Duration of refractory pain, yrs | 1 (1-2) |
| Total kidney volume, L | 1.66 (0.91-2.74) |
| Total liver volume, L | 2.61 (2.00-3.33) |

Nerve supply



Flowchart ADPKD patients



Results sequential nerve blocks

| | Intervention | | P-value |
|---------------------------------------|--------------|------------|---------|
| | Pre | Post | |
| Diagnostic celiac block (N=35) | | | |
| Substantial pain relief, % | X | 77.1 | <0.001 |
| VAS score, 0-100 | 60 (50-80) | 20 (20-40) | |
| Pain recurred, % | X | 42.9 | |
| Splanchnic nerve block (N=15) | | | |
| Substantial pain relief, % | X | 86.7 | 0.003 |
| VAS score, 0-100 | 60 (55-80) | 20 (5-30) | |
| Pain recurred, % | X | 7.7 | |
| Renal denervation (N=5) | | | |
| Substantial pain relief, % | X | 60.0 | 0.07 |
| VAS score, 0-100 | 60 (50-75) | 20 (0-50) | |
| Pain recurred, % | X | 0.0 | |