

AULA 1

PORQUE MONTAR SEU PRÓPRIO CONSULTÓRIO

Vantagens e desvantagens de ter seu próprio consultório de nefrologia + Manejo prático da Doença Renal Crônica



AULA 2

ESTRATÉGIAS PARA CRESCER COMO NEFROLOGISTA + CASO CLÍNICO DE DRPAD E LITÍASE



AULA 3

COMO ATRAIR MAIS PACIENTES E EXPANDIR SEU CONSULTÓRIO + ATUALIZAÇÕES SOBRE GLOMERULOPATIAS

Dicas valiosas que fazem seu paciente fidelizar e lembrar de você para sempre.



AULA 4

REVISÃO DA SEMANA E SORTEIO



SORTEIO

GRANDE PRÊMIO

Uma vaga no meu curso de consultório + uma sessão de mentoria individual comigo



Grande Sorteio

QUEM PODE PARTICIPAR DO SORTEIO?

Todos que se *inscreveram* na Semana da Nefrologia Ambulatorial

Regras:

- Assistir atentamente a todas as aulas da SEMANA
- Liberação do **Quiz na quinta feira** contendo 10 perguntas sobre os temas que foram ensinados ao longo dessa Semana
- Responder o QUIZ até às 18 horas de domingo (dia 07/09)
- Acertar 70% ou mais da prova
- Estar on-line no momento do sorteio para receber o prêmio (ao vivo)



NEFROATUAL:

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Tópicos essenciais para a Prova
de Título de Nefrologia

Tópicos essenciais para a Prova
de Título de Nefrologia

 **nefro**atual



 **nefro**atual



AULA 2

**ESTRATÉGIAS PARA
CRESCER COMO
NEFROLOGISTA + CASO
CLÍNICO DE DRPAD E LITÍASE**





impossible





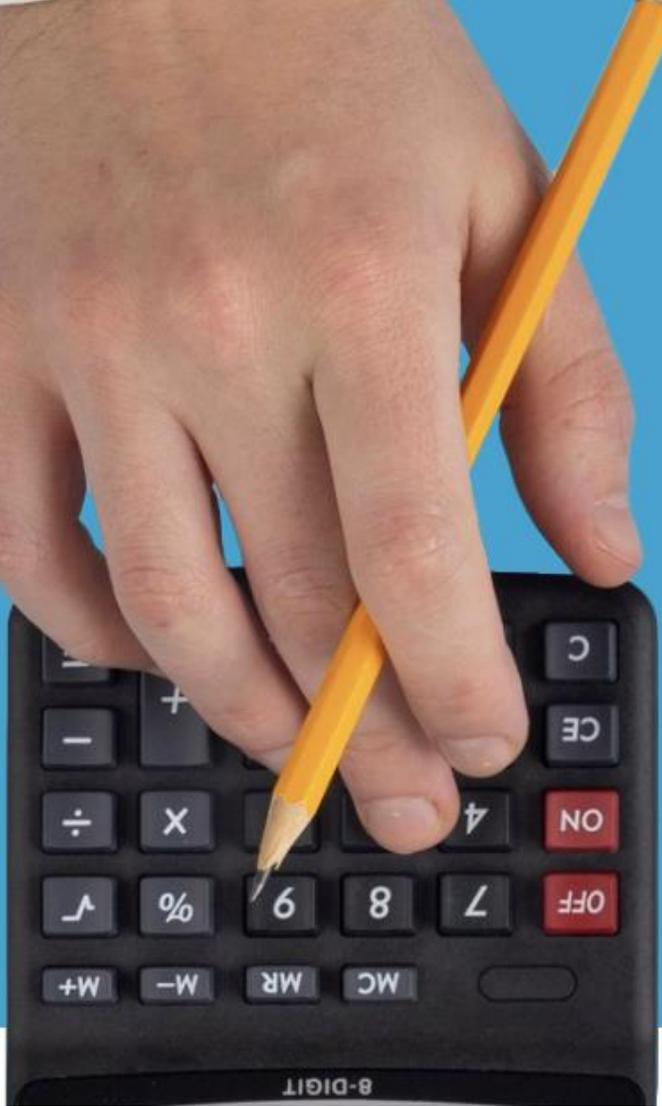
COMEÇE AGORA



Comece pequeno mas sonhe grande

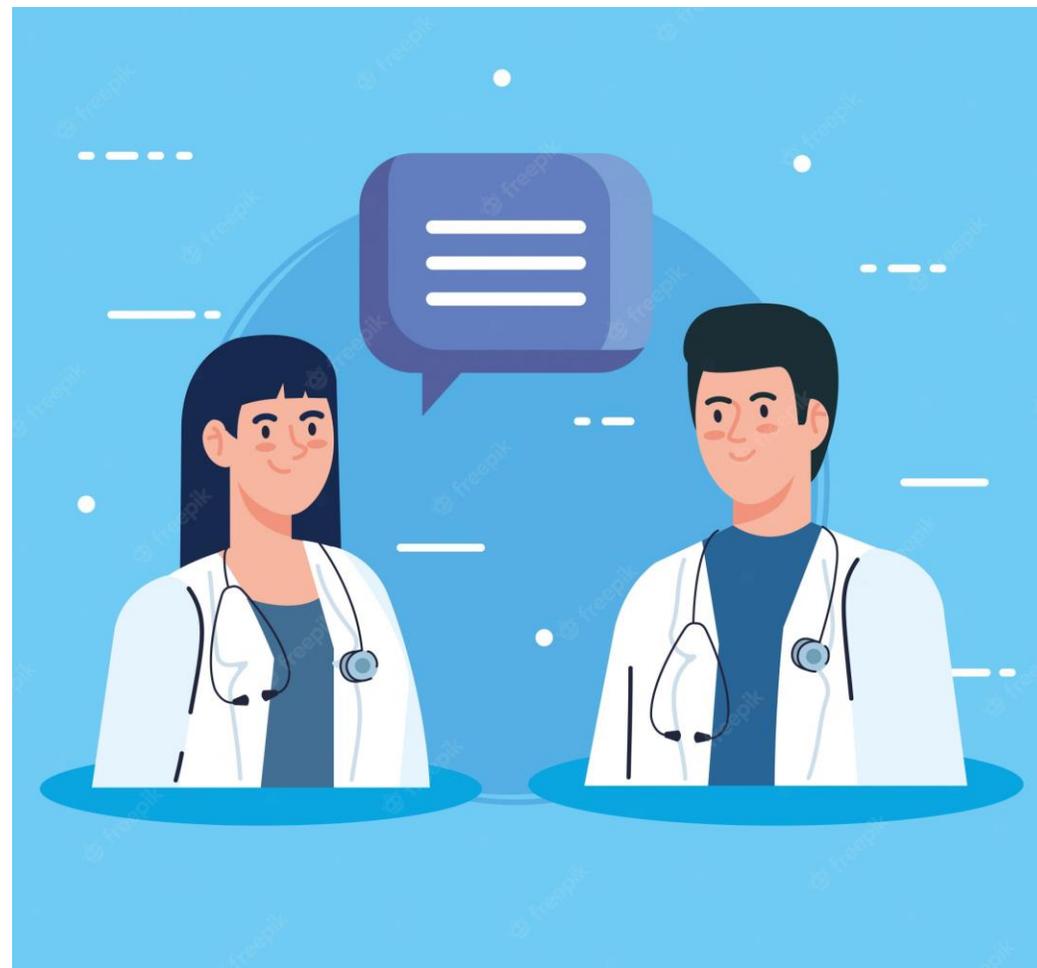


Escolha seu público alvo



Converse com seu contador





Não atenda para outras pessoas jurídicas



Use Prontuário Eletrônico



Colete todos os Dados do Paciente



Esteja presente nas mídias sociais

Redes sociais mais usadas no Brasil



As 10 redes sociais mais usadas no Brasil em 2023 são:

1. WhatsApp (169 mi)
2. YouTube (142 mi)
3. Instagram (113 mi)
4. Facebook (109 mi)
5. TikTok (82 mi)
6. LinkedIn (63 mi)
7. Messenger (62 mi)
8. Kwai (48 mi)
9. Pinterest (28 mi)
10. Twitter (24 mi)

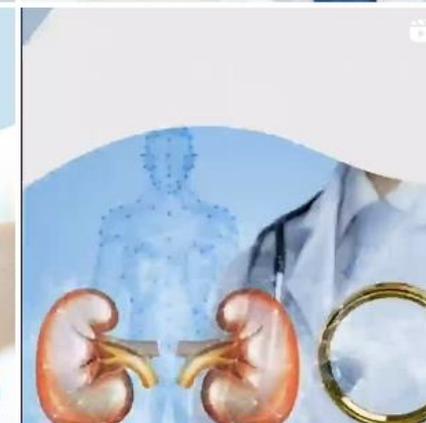
4 pilares

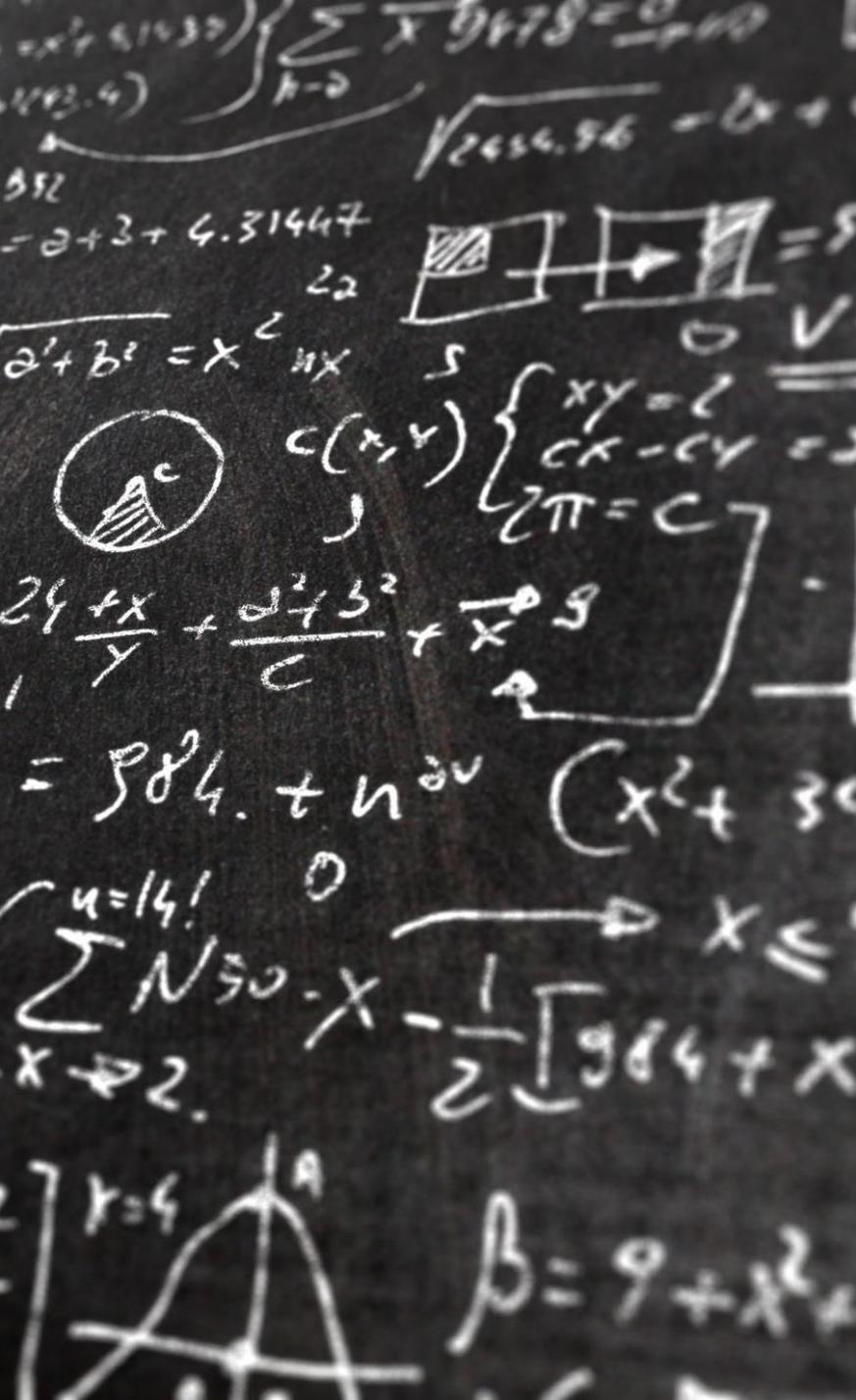
- **Autoridade**
- **Engajamento**
- **Crescimento**
- **Vendas (consultas)**



FEED

Quem **você é** e
o que **você faz**





Engajamento

- **Regras:**

- O óbvio precisa ser dito
- Não precisa ser posts rebuscados
- Bons conteúdos geram reciprocidade
- Os seus primeiros conteúdos não terão engajamento
- O pouco que você acha que sabe é muito para quem não sabe nada
- Nada é básico demais
- Conteúdo é a sua propaganda, você precisa ser visto
- O seu conteúdo gratuito precisa ser muito bom
- O seu pior conteúdo serão os primeiros
- A constância é o sucesso



Treine sua secretária



O Pré e Pós- Consulta: Como Transformar Seu Atendimento e Fidelizar Pacientes

Passo a passo para um atendimento de alto valor, com experiência diferenciada e mais engajamento dos pacientes.

Checklist para um Atendimento de Alto Valor



Pré-Consulta:

Confirmação de consulta com todas as informações.

Envio de link de localização e formas de pagamento.



Durante a Consulta:

Atendimento sem pressa, explicação detalhada.

Médico acompanha paciente até a recepção.



Pós-Consulta:

Agradecimento e reforço do plano de tratamento.

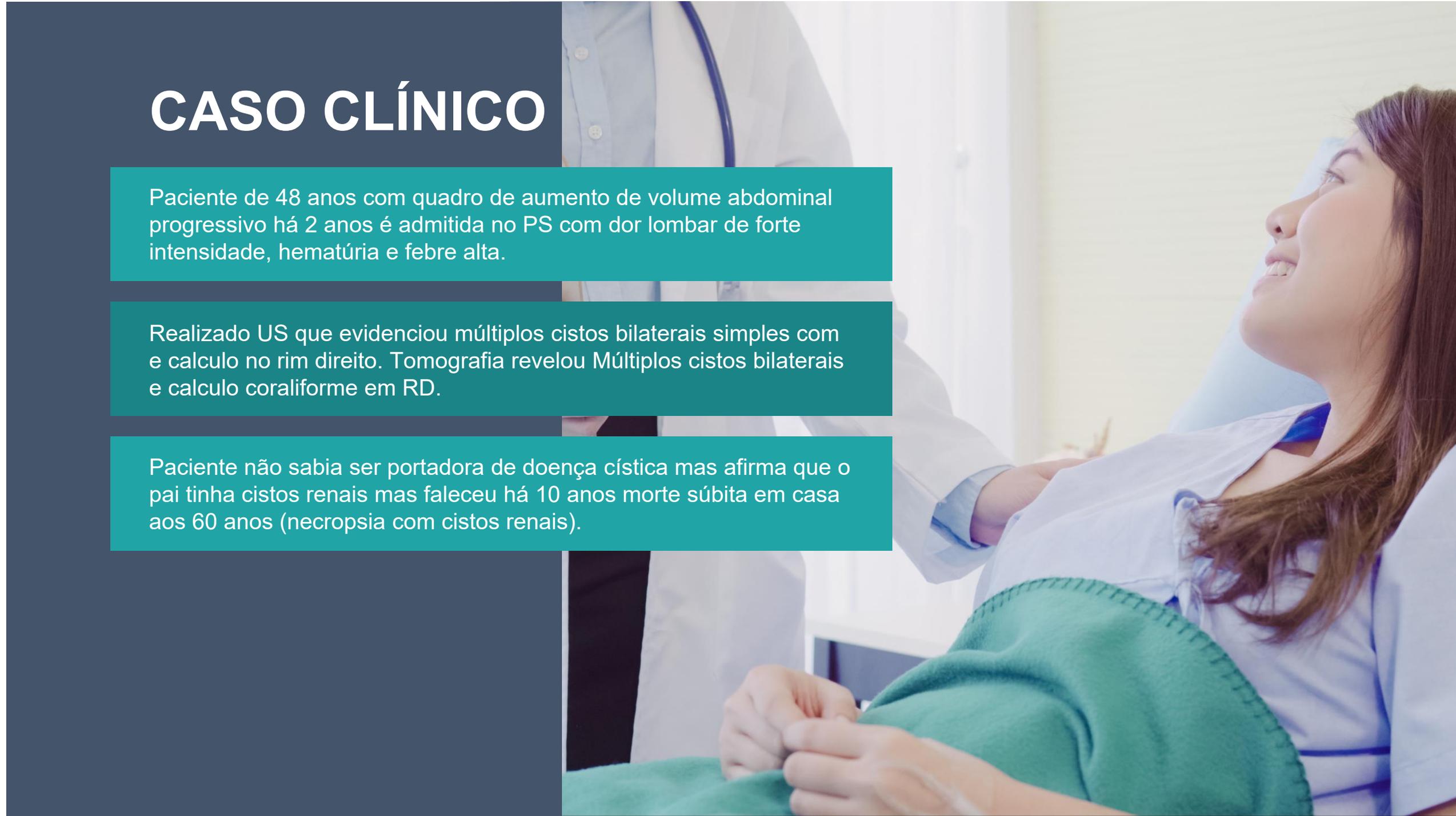
Solicitação de avaliação online.

Follow-up sobre exames e medicação.



CONVÊNIO OU PARTICULAR?

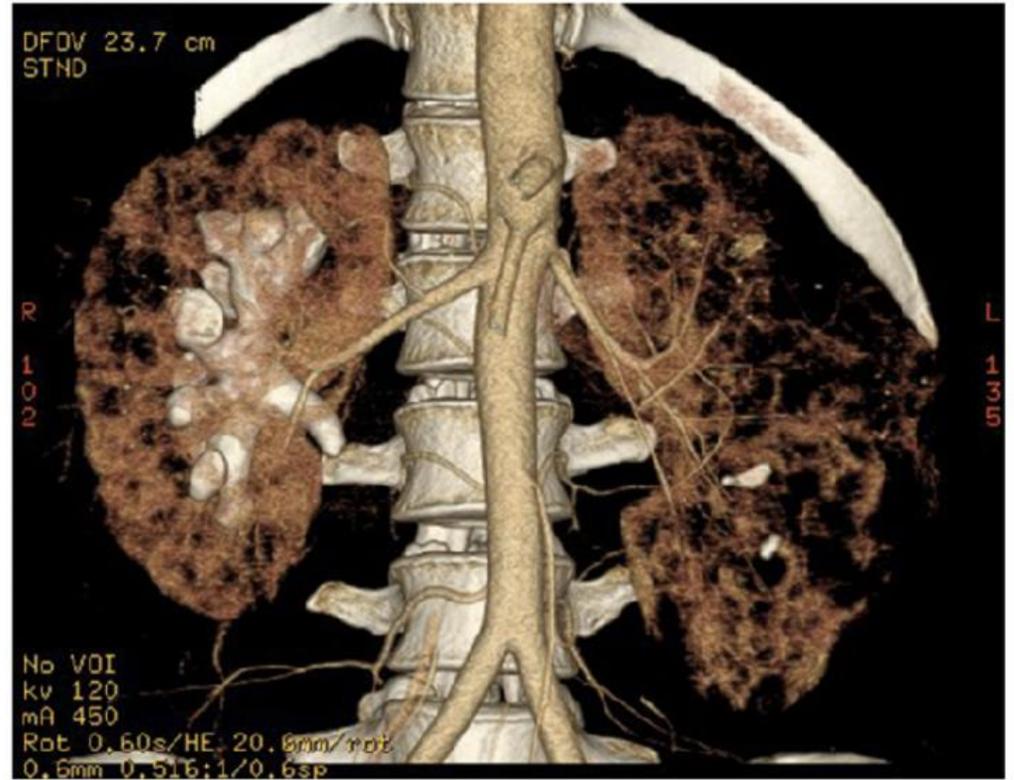
CASO CLÍNICO



Paciente de 48 anos com quadro de aumento de volume abdominal progressivo há 2 anos é admitida no PS com dor lombar de forte intensidade, hematúria e febre alta.

Realizado US que evidenciou múltiplos cistos bilaterais simples com e calculo no rim direito. Tomografia revelou Múltiplos cistos bilaterais e calculo coraliforme em RD.

Paciente não sabia ser portadora de doença cística mas afirma que o pai tinha cistos renais mas faleceu há 10 anos morte súbita em casa aos 60 anos (necropsia com cistos renais).



E AGORA?

1. Essa paciente tem DRPAD?
2. Qual a chance de ela ter herdado a doença?
3. Como é feito o Dx da DRPAD?
4. Qual o prognóstico?
5. Como tratar a paciente?
6. Quais as principais complicações?
7. Tem como retardar a progressão da doença mesmo Sendo causada por uma alteração genética?

CRITÉRIO DIAGNÓSTICO

Proposta Diagnóstica	Idade (anos)*	Achados no exame de imagem	História familiar de PKD1	História familiar de PKD2	História familiar + sem teste genético
Confirmação					
	15 to 29	Total de ≥ 3 cistos [¶]	VPP, 100% Sensibilidade, 94.3%	VPP, 100% Sensibilidade, 69.5%	VPP, 100% Sensibilidade, 81.7%
	30 to 39	Total de ≥ 3 cistos [¶]	VPP, 100% Sensibilidade, 96.6%	VPP, 100% Sensibilidade, 94.9%	VPP, 100% Sensibilidade, 95.5%
	40 to 59	≥2 cistos em cada rim	VPP, 100% Sensibilidade, 92.6%	VPP, 100% Sensibilidade, 88.8%	VPP, 100% Sensibilidade, 90.0%
Exclusão					
	15 to 29	Ausência de cisto Renal	VPN, 99.1% Especificidade, 97.6%	VPN, 83.5% Especificidade, 96.6%	VPN, 90.8% Especificidade, 97.1%
	30 to 39	Ausência de cisto Renal	VPN, 100% Especificidade, 96.0%	VPN, 96.8% Especificidade, 93.8%	VPN, 98.3% Especificidade, 94.8%
	40 to 59	Ausência de cisto Renal	VPN, 100% Especificidade, 93.9%	VPN, 100% Especificidade, 93.7%	VPN, 100% Especificidade, 93.9%

HISTÓRIA FAMILIAR NEGATIVA

10 ou mais cistos (≥ 5 mm) em **cada rim**, principalmente se os rins estiverem aumentados ou se forem observados cistos hepáticos.

O teste genético deve ser realizado em pacientes com resultados de imagem duvidosos ou se houver necessidade de estabelecer um diagnóstico preciso (por exemplo, para candidatura a transplante ou planejamento pré-natal).

Em até 25% dos indivíduos com DRPAD, a apresentação clínica e os estudos de imagem sugerem um diagnóstico de DRPAD, mas ninguém mais na família é conhecido por ter a doença.

Na maioria desses casos, a doença é hereditária, mas o parente afetado morreu sem um diagnóstico ou está vivo com uma forma leve da doença que não foi detectada.

Revisão das informações médicas ou estudos de imagem dos pais ou outros membros da família pode ser útil para esses pacientes.

Em aproximadamente **5 %** dos casos, a doença pode ser devido a **uma nova mutação ou devido ao mosaicismo**



MANIFESTAÇÕES RENAIIS

Manifestation	Prevalence	Comments	Refs
<i>Renal</i>			
Urinary concentration defect ^a	Up to 60% of children	Earliest manifestation of mild polyuria is often undetected	2,302
Hypertension ^a	<ul style="list-style-type: none"> • 50–70% of patients prior to GFR decline • Average age of onset is 30 years • At least 20–40% of children 	Screen children with family history of ADPKD from 5 years of age, then at 3-year intervals if negative for hypertension	122,176
ESRD ^a	50% of patients by 60 years of age	Mean age of onset of 56 years (truncating <i>PKD1</i> mutations), 68 years (non-truncating <i>PKD1</i> mutations) or 78 years (<i>PKD2</i> mutations)	64
Proteinuria (>300 mg/day)	Associated with GFR decline	Prognostic marker of ADPKD	2
Abdominal or flank pain	>60% of adult patients	<ul style="list-style-type: none"> • Acute or chronic • Multiple causes 	115
Nephrolithiasis	20–35% of adult patients	Uric acid and/or calcium oxalate stones	2
Cyst haemorrhage and/or gross haematuria	Up to 60% of adult patients	Most haemorrhages resolve within 2–7 days without intervention	115
Urinary tract infection ^a	30–50% of adult patients	More common in women than in men	115
Renal cell carcinoma	<1% of adult patients	Risk not increased compared with the general population, but patients can present with systemic symptoms of cancer	68,219

MANIFESTAÇÕES CLÍNICAS EXTRA RENAIS

<i>Extrarenal</i>			
Polycystic liver disease	>80% of patients by 30 years of age	Include liver imaging in initial visit; further follow-up dependent on result of imaging	68
ICA	<ul style="list-style-type: none"> • 8% of all adult patients • 21% of adult patients with a family history of ICA 	Screen if family history of subarachnoid haemorrhage or ICA, personal history of intracranial haemorrhage, individuals working in high-risk professions and before major elective surgery (including before transplantation)	238
Arachnoid cysts	8% of adult patients	Possible increased risk of spontaneous subdural haematoma	115
Mitral valve prolapse or bicuspid aortic valve	Up to 25% of adult patients	Screen when there is a heart murmur or symptoms	122
Idiopathic dilated cardiomyopathy or left ventricular non-compaction	Rare	Screen when there is a family history of these conditions	122
Pericardial effusion	Up to 35% of adult patients	Screen if symptoms of pericardial effusion are present	122
Pancreatic cysts	10% of adult patients	No screening needed	115
Diverticulosis	Up to 50% of patients with ESRD	Increased risk of diverticulum perforation following renal transplantation	115
Bronchiectasis	Up to 35–40% of adult patients	Mild; no screening needed	115
Congenital hepatic fibrosis ^a	Rare (on the basis of case reports)	No screening needed	141,303
Seminal vesicle cysts	Up to 40% of men	No correlation to semen abnormalities	304
Male infertility	Associated with ADPKD	Abnormal semen parameters reported	304

RASTREIO DAS COMPLICAÇÕES



Als ocorrem em 9-12% dos pacientes com DRPAD em comparação com 2–3% na população em geral



Os aneurismas intracranianos (Als) são a manifestação vascular mais comum da DRPAD



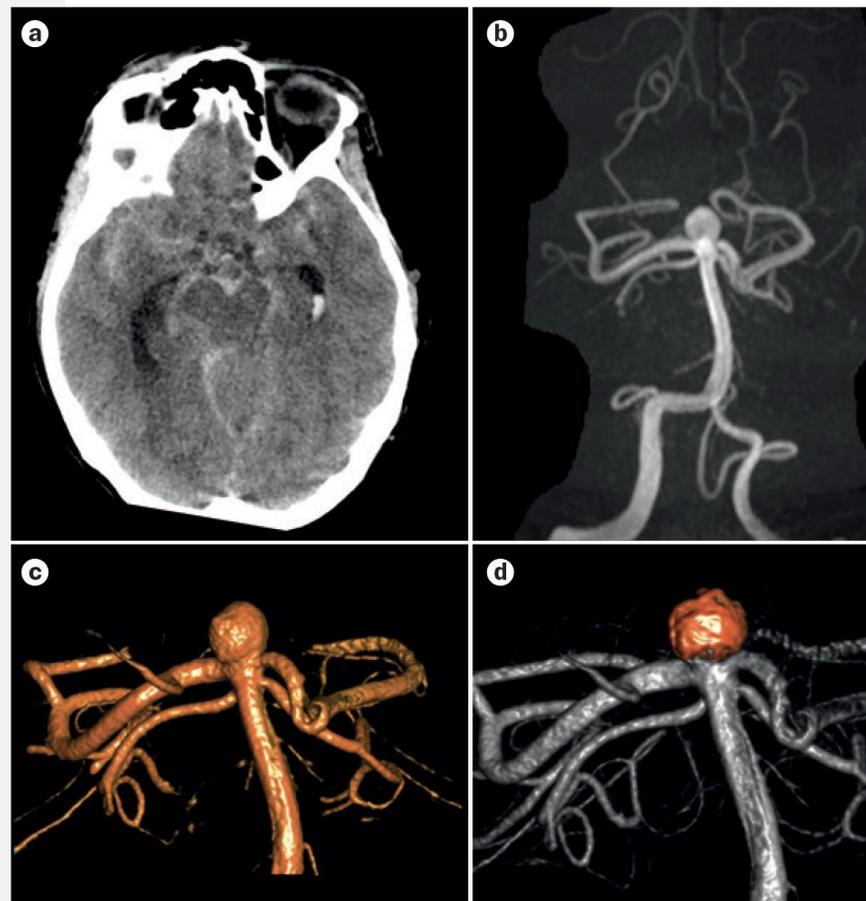
Indivíduos com DRPAD e risco aumentado de AI - incluindo aqueles com história familiar ou pessoal de IA ou hemorragia subaracnoide - devem ser submetidos a triagem

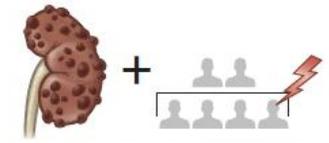
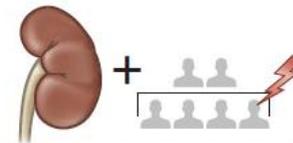


Als assintomáticos são frequentemente pequenos e têm baixo risco de ruptura



A intervenção, cirúrgica ou endovascular, é indicada com base no tamanho e localização do aneurisma





	General population	General population with family history of ICA or SAH	ADPKD population	ADPKD population with family history of ICA or SAH
Prevalence of ICA (95% CI)	2.9% (1.9–4.5)	3.4 (1.9–5.9) higher risk ^a	12.9% (10.4–15.4) (Figure 36)	17.1% (13.4–21.1) ^b
Incidence rates of SAH (per 1000 person-years, 95% CI)	0.079 (0.069–0.09) ^c	3–7 higher risk	0.57 (0.19–1.14) (Figure 37)	Likely higher (based on data from general population)

INDICAÇÕES DE RASTREIO DE AI



História familiar de AI ou hemorragia subaracnóide



Ruptura anterior de AI



Profissões de alto risco (pilotos de linha aérea)



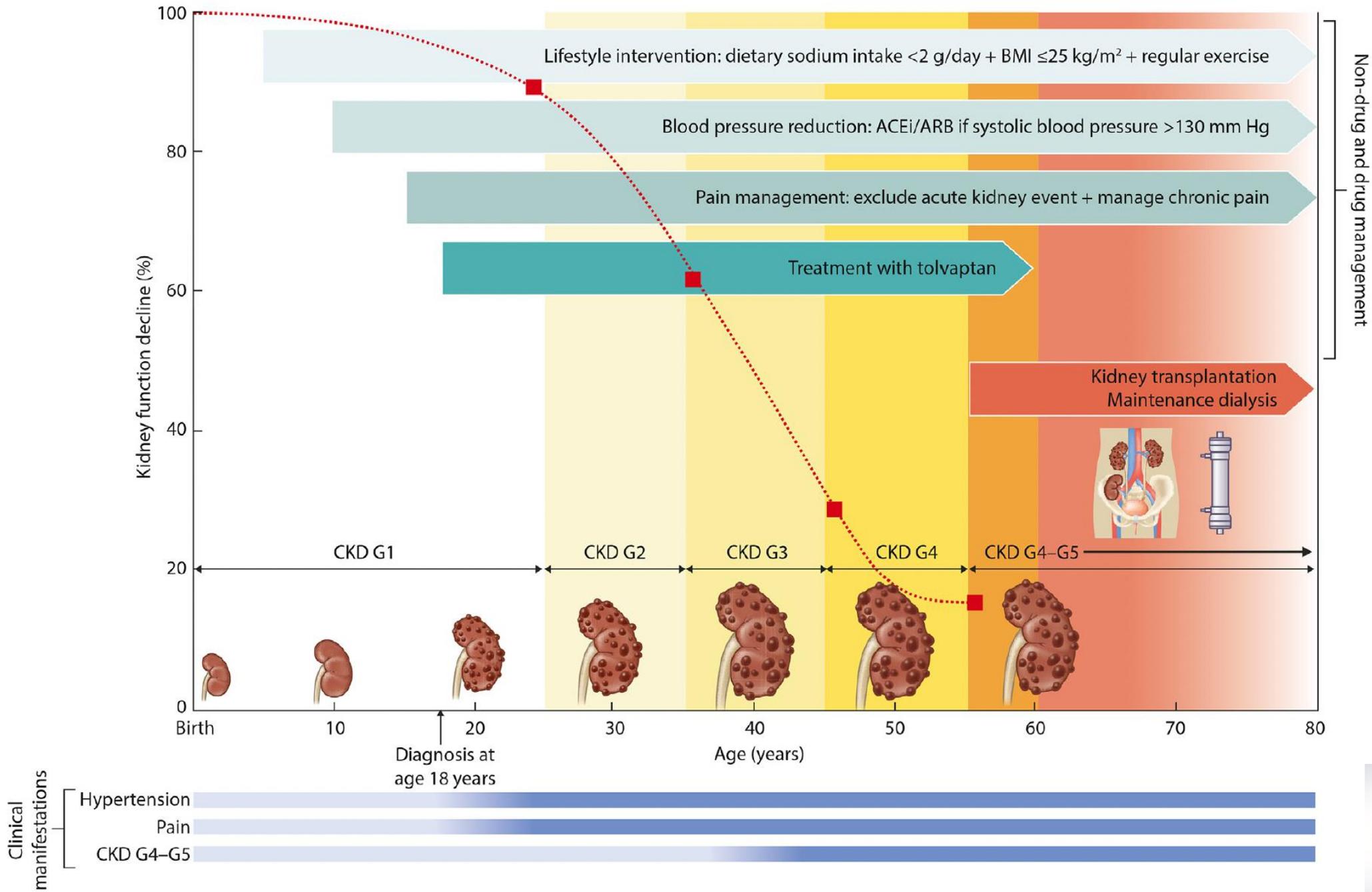
Ansiedade do paciente, apesar de adequada informação

Ressonância magnética sem contraste de gadolínio é o método de triagem de escolha



TRATAMENTOS





TRATAMENTO ESPECÍFICO

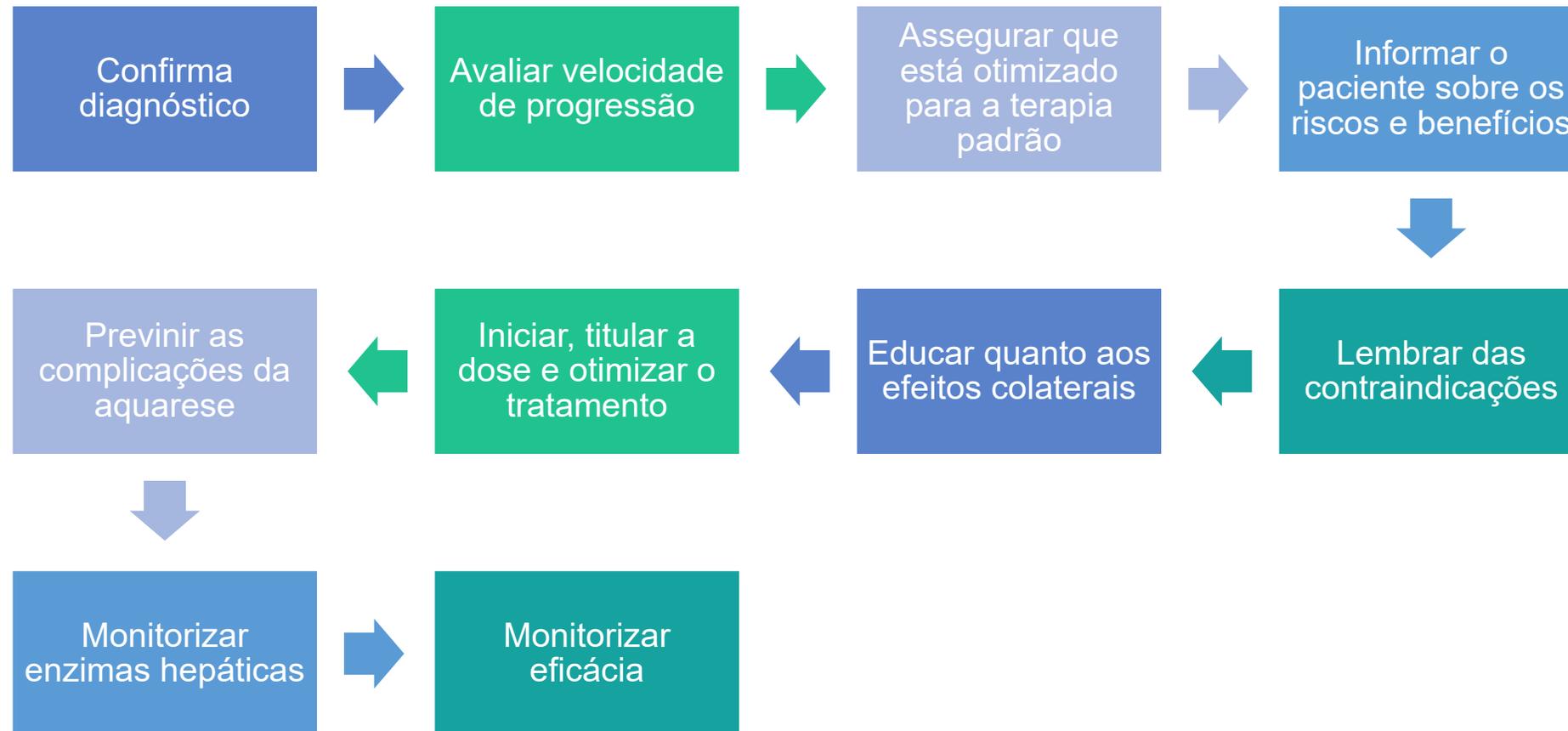
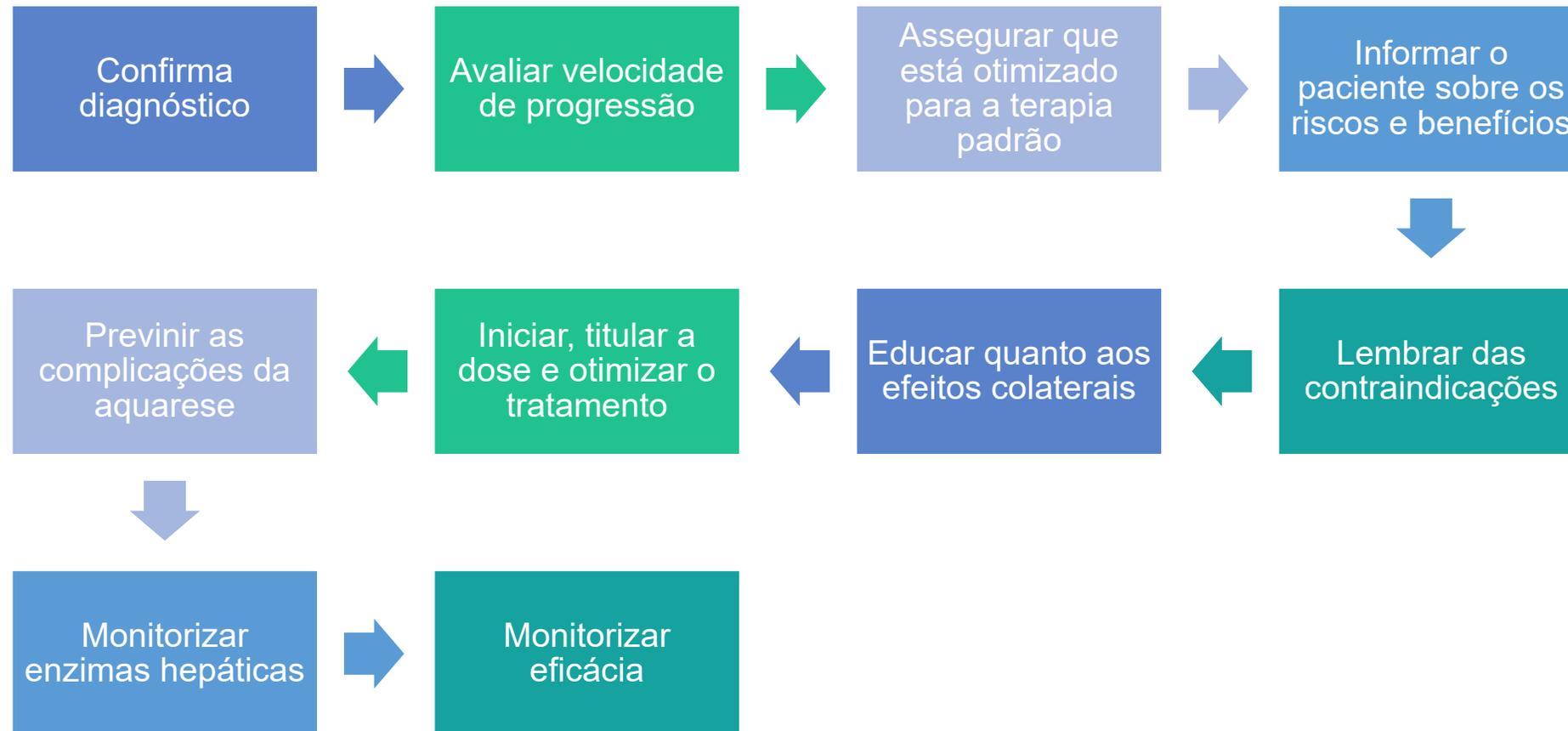


Table 2. Basic optimized management of adult patients with ADPKD

Intervention	Goal	Methods to Achieve Goal	Evidence ^a
Intensive BP control	<p>≤110/75 mm Hg in:</p> <ol style="list-style-type: none"> 18–50-year-olds eGFR >60 ml/min per 1.73 m² Particularly: <ul style="list-style-type: none"> Mayo Clinic class 1 C–E Intracranial aneurysm Valvular heart disease 	<p>Early detection is essential^b</p> <p>By order of preference:</p> <ol style="list-style-type: none"> 1. ACEI/ARB 2. α/β or cardioselective β-blocker 3. Dihydropyridine CCB 4. Diuretic <p>Dietary Approaches to Stop Hypertension (DASH)-like diet at early stages</p>	Grade 1B
Sodium	<p>≤130/85 mm Hg in:</p> <ol style="list-style-type: none"> Other adult hypertensives <p>Moderate restriction (2.3–3 g/d)</p> <p>Adjust for extrarenal losses (hot climate, runners, sauna, bowel disease) if appropriate</p>	<p>Counseling</p> <p>Dietitian follow-up</p> <p>Monitor 24-h urine sodium</p>	Grade 1C
Hydration	<p>Moderately enhanced hydration spread out over 24 h (during the day, at bedtime, and at night if waking up)</p> <p>Maintain urine osmolality ≤280 mOsm/kg</p>	<p>Counseling</p> <p>Monitor first morning urine osmolality, plasma copeptin if available</p> <p>Water prescription(L) = $\frac{24\text{-hour urine solute load(mOsm)}}{280} + \text{Insensible loss}(f 0.5 \text{ L})$</p>	Grade 1C
Protein	0.8–1.0 g/kg of ideal body wt	<p>Dietitian</p> <p>Monitor protein intake: $6.25 \times (\text{urine urea nitrogen in g/d} + [0.03 \times \text{weight in kilogram}])$</p>	Grade 1C
Phosphorus	Moderate diet phosphate restriction (800 mg/d)	<p>Dietician</p> <p>Read food labels and watch for food additives containing phosphates</p> <p>Use of phosphate binders not different from other advanced CKD when needed</p>	Grade 2C
Acid base	Maintain plasma bicarbonate within the normal range (≥22 mEq/L)	<p>Increase fruits/vegetables (2–4 cups/d)</p> <p>Oral sodium bicarbonate if needed</p>	Grade 2B
Caloric intake	Maintain normal BMI Moderation in caloric intake	<p>Dietitian follow-up</p> <p>Regular exercise</p>	Grade 1C
Lipid control	Aim for serum LDL ≤100 mg/dl	<p>Dietician</p> <p>Regular exercise</p> <p>Statin if needed (ezetimibe if intolerant to statin)</p>	Grade 2B



TRATAMENTO ESPECÍFICO



PublicAffairsBR@MAYO.edu at least five (5) business days prior to the date on which a response is needed.

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1 Kidney Volume Calculator based on Ellipsoid equation ($\pi/6 \times L \times W \times D$) from MRI or CT image			
Required Data Entry			
Right Kidney		Left Kidney	
Sagittal Length (mm)	<input type="text"/>	Sagittal Length (mm)	<input type="text"/>
Coronal Length (mm)	<input type="text"/>	Coronal Length (mm)	<input type="text"/>
Width (mm)	<input type="text"/>	Width (mm)	<input type="text"/>
Depth (mm)	<input type="text"/>	Depth (mm)	<input type="text"/>
Calculated Results			
Right Kidney Volume (mL)	<input type="text"/>	Left Kidney Volume (mL)	<input type="text"/>
		Total Kidney Volume (mL)	<input type="text"/>
<input type="button" value="Clear All"/>		<input type="button" value="Calculate Volumes"/>	

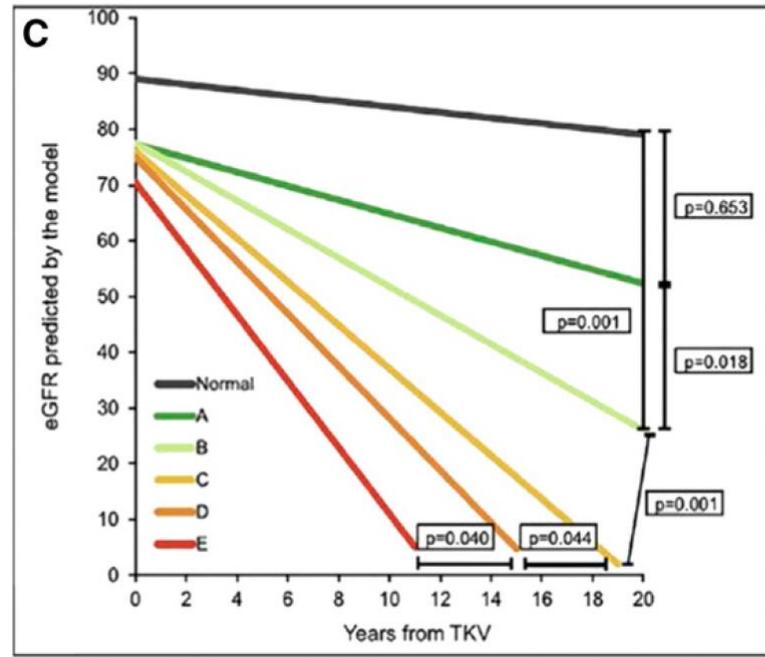
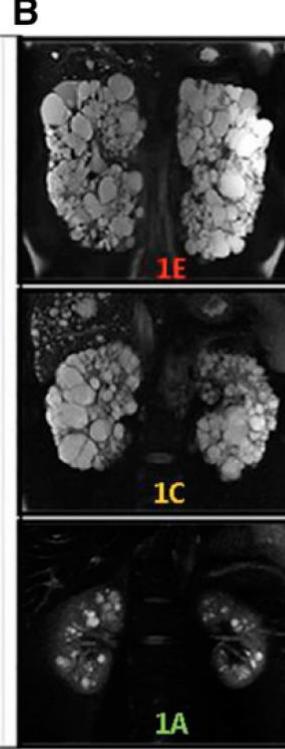
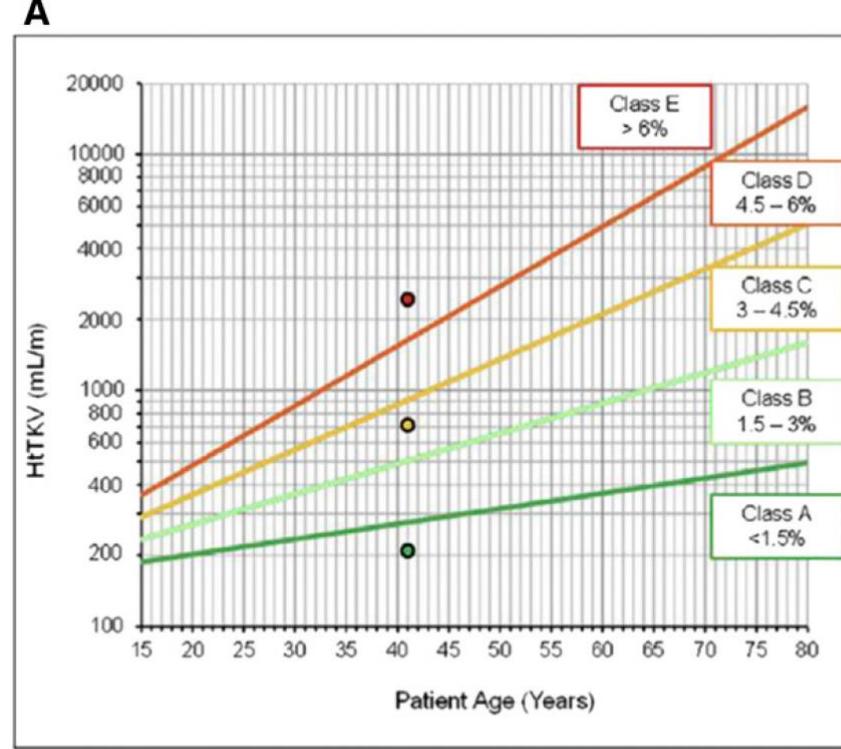
2 ADPKD Classification using Kidney Volume Calculator	
Required Data Entry	Calculated Results
Patient Height (m)	Height Adjusted TKV (mL/m)
<input type="text"/>	<input type="text"/>
Patient Age (years)	ADPKD Classification
<input type="text"/>	<input type="text"/>
<input type="button" value="Clear All"/>	<input type="button" value="Calculate Classification"/>

3 ADPKD Classification if Kidney Volume previously calculated by Stereology	
Required Data Entry	Calculated Results
Kidney Volume (mL)	Height Adjusted TKV (mL/m)
<input type="text"/>	<input type="text"/>
Patient Height (m)	ADPKD Classification
<input type="text"/>	<input type="text"/>
Patient Age (years)	
<input type="text"/>	
<input type="button" value="Clear All"/>	<input type="button" value="Calculate Classification"/>

4 Prediction of Future eGFR based on Classification	
Required Data Entry	Calculated Results
Serum Creatinine (mg/dL) [†]	Current eGFR (mL/min/1.73m ²)
<input type="text"/>	<input type="text"/>
Age (years)	Future eGFR (mL/min/1.73m²)
<input type="text"/>	<input type="text"/>
Race (AA/O) [‡]	
<input type="text"/>	
Gender (M/F)	
<input type="text"/>	
ADPKD Classification	
<input type="text"/>	
Future time (years)	
<input type="text"/>	
<input type="button" value="Clear All"/>	<input type="button" value="Calculate Current and Future eGFR"/>

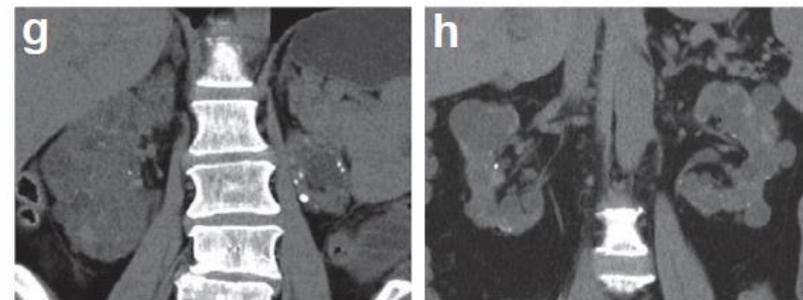
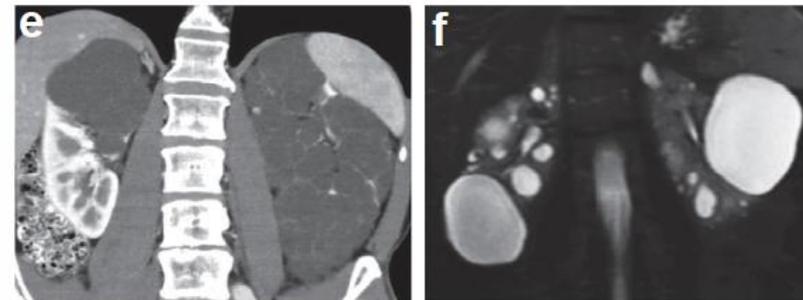
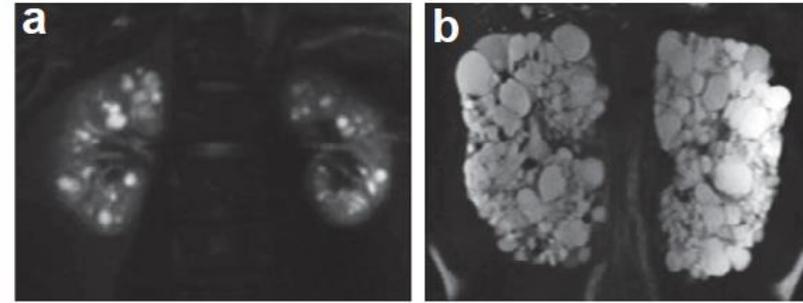
[†] This equation is only valid with creatinine assays that are traceable to IDMS

[‡] AA = African American; O = All ethnic groups other than African American



	Estimated eGFR slope (ml/min/SA per year)	
	Male	Female
Class 1A	-0.23	0.03
Class 1B	-1.33	-1.13
Class 1C	-2.36	-2.43
Class 1D	-3.48	-3.29
Class 1E	-4.78	-4.58

Class, subclass, and term	Description
1. Typical ADPKD	Bilateral and diffuse distribution, with mild, moderate, or severe replacement of kidney tissue by cysts, where all cysts contribute similarly to TKV
2. Atypical ADPKD	
A	
Unilateral	Diffuse cystic involvement of one kidney causing marked kidney enlargement with a normal contralateral kidney defined by a normal kidney volume (<275 ml in men; <244 ml in women) and having no or only 1–2 cysts
Segmental	Cystic disease involving only one pole of one or both kidneys and sparing the remaining kidney tissue
Asymmetric	Diffuse cystic involvement of one kidney causing marked kidney enlargement with mild segmental or minimal diffuse involvement of the contralateral kidney defined by a small number of cysts (>2 but <10) and volume accounting for <30% of TKV
Lopsided	Bilateral distribution of kidney cysts with mild replacement of kidney tissue with atypical cysts where ≤ 5 cysts account for $\geq 50\%$ TKV (the largest cyst diameter is used to estimate individual cyst volume)
B	
Bilateral presentation with acquired unilateral atrophy	Diffuse cystic involvement of one kidney causing moderate to severe kidney enlargement with contralateral acquired atrophy
Bilateral presentation with bilateral kidney atrophy	Impaired kidney function (serum creatinine ≥ 1.5 mg/dl [133 $\mu\text{mol/l}$]) without significant enlargement of the kidneys, defined by an average length <14.5 cm, and replacement of kidney tissue by cysts with atrophy of the parenchyma



TEMPO 3:4**CKD G1–G3a****Study population**

n=1445
18 to 50 years old
TKV >750 ml in CKD

Dose of tolvaptan*

120 mg/d (55%), 90 mg/d (21%), 60 mg/d (24%)

Main results

- Primary endpoint: reduced rate of increase in TKV: 2.8%/year in tolvaptan group vs. 5.5%/year in placebo
- Secondary endpoints: slower decline in kidney function (reciprocal of the serum creatinine level, $-2.61 \text{ [mg/ml]}^{-1}/\text{year}$ vs. $-3.81 \text{ [mg/ml]}^{-1}/\text{year}$, $P < 0.001$); lower rates of worsening kidney function (2 vs. 5 events per 100 person-years, $P < 0.001$) and kidney pain (5 vs. 7 events per 100 person-years of follow-up; $P = 0.007$).

Adverse effects

Tolvaptan associated with aquaresis and abnormal liver function tests and higher discontinuation rate (23% vs. 14% in the placebo group).

REPRISE**CKD G3–G4****Study population**

n=1390
18–55 years old + (eGFR 25–65 ml/min per 1.73 m²)
56–65 years old + (eGFR 25–44 ml/min per 1.73 m²)

Ability to tolerate tolvaptan after an 8-week run-in

Dose of tolvaptan*

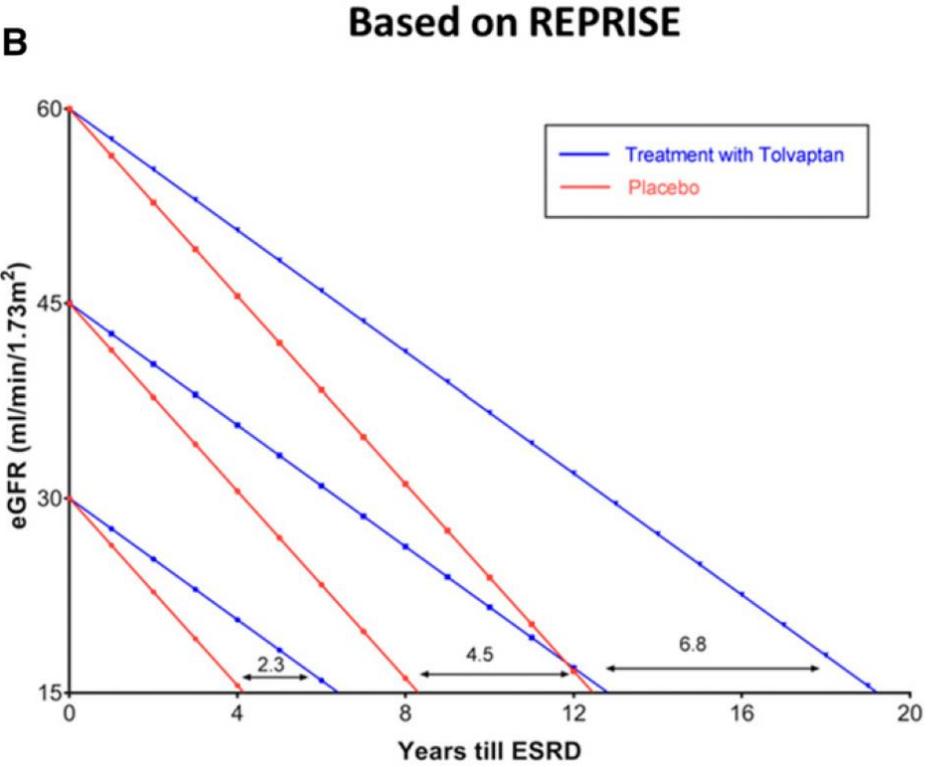
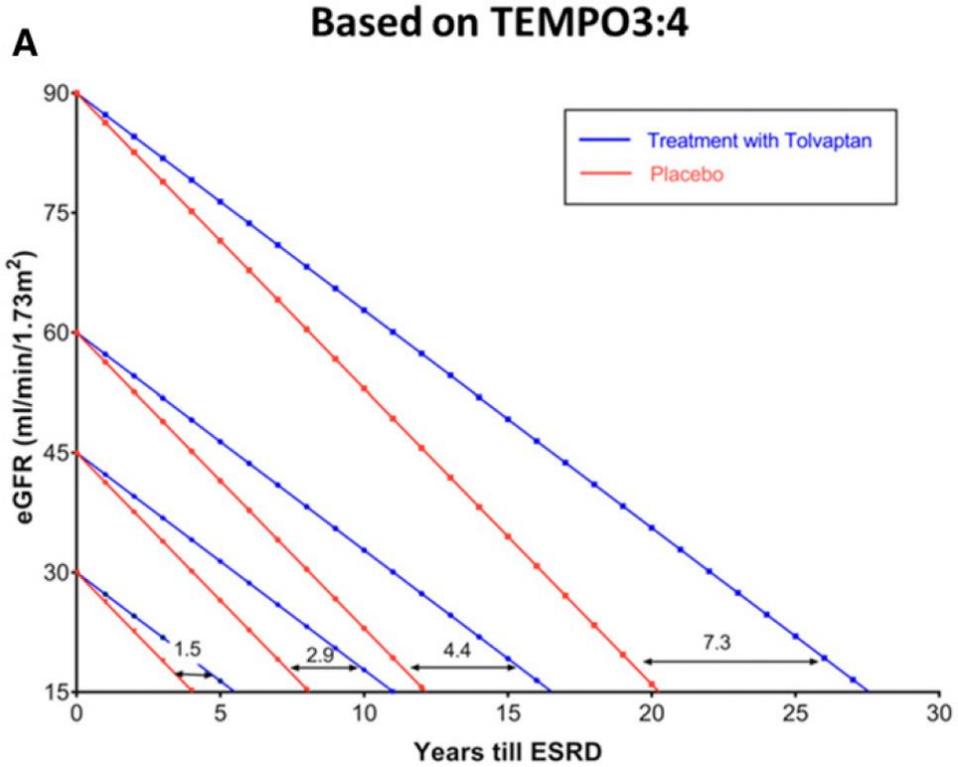
120 mg/d (61%), 90 mg/d (30%), 60 mg/d (10%)

Main results

- Primary endpoint: Reduced rate of decline in eGFR by $-2.34 \text{ ml/min per } 1.73 \text{ m}^2$ in the tolvaptan vs. $-3.61 \text{ ml/min per } 1.73 \text{ m}^2$ in the placebo; $P < 0.001$.

Adverse effects

Reversible increases in the ALT to >3 times the normal range (5.6% in the tolvaptan group vs. 1.2% in the placebo group)



Benefits

- Reduces eGFR decline (–1.3 ml/min per 1.73 m²/year)
- Reduces increase in total kidney volume (greatest in first year of treatment)
- Reduces acute pain events (stone and urinary tract infection)



Harms

- Aquaretic side effects (polyuria, polydipsia, thirst)
- Risk of drug-induced hepatotoxicity
- Requirement for lifelong blood tests to monitor liver function tests (monthly for first 18 months and then 3 monthly)
- Drug interactions
- Cost

Uncertainties

1. Can tolvaptan delay onset of kidney failure?
2. What is the long-term tolerability of tolvaptan?
3. What are the long-term effects of increase in endogenous AVP levels?

Table 9 | Checklist of contraindications to initiating and/or maintaining tolvaptan use

Absolute

- Planning pregnancy, pregnancy, or breastfeeding
- Medical conditions associated with or at high risk of volume depletion
- Inability to respond to or perceive thirst
- Uncorrected baseline hypernatremia
- Urinary tract obstruction
- Strong CYP3A inhibitors^a
- Significant liver disease unless due to PLD

Relative

- eGFR at initiation <25 ml/min per 1.73 m²
- History of gout or hyperuricemia
- Moderate CYP3A inhibitors^b, P-gp inhibitors^c, grapefruit and Seville orange consumption
- Urinary incontinence

**Initiation of tolvaptan should be offered to adults with ADPKD and:
eGFR \geq 25 ml/min per 1.73 m²**

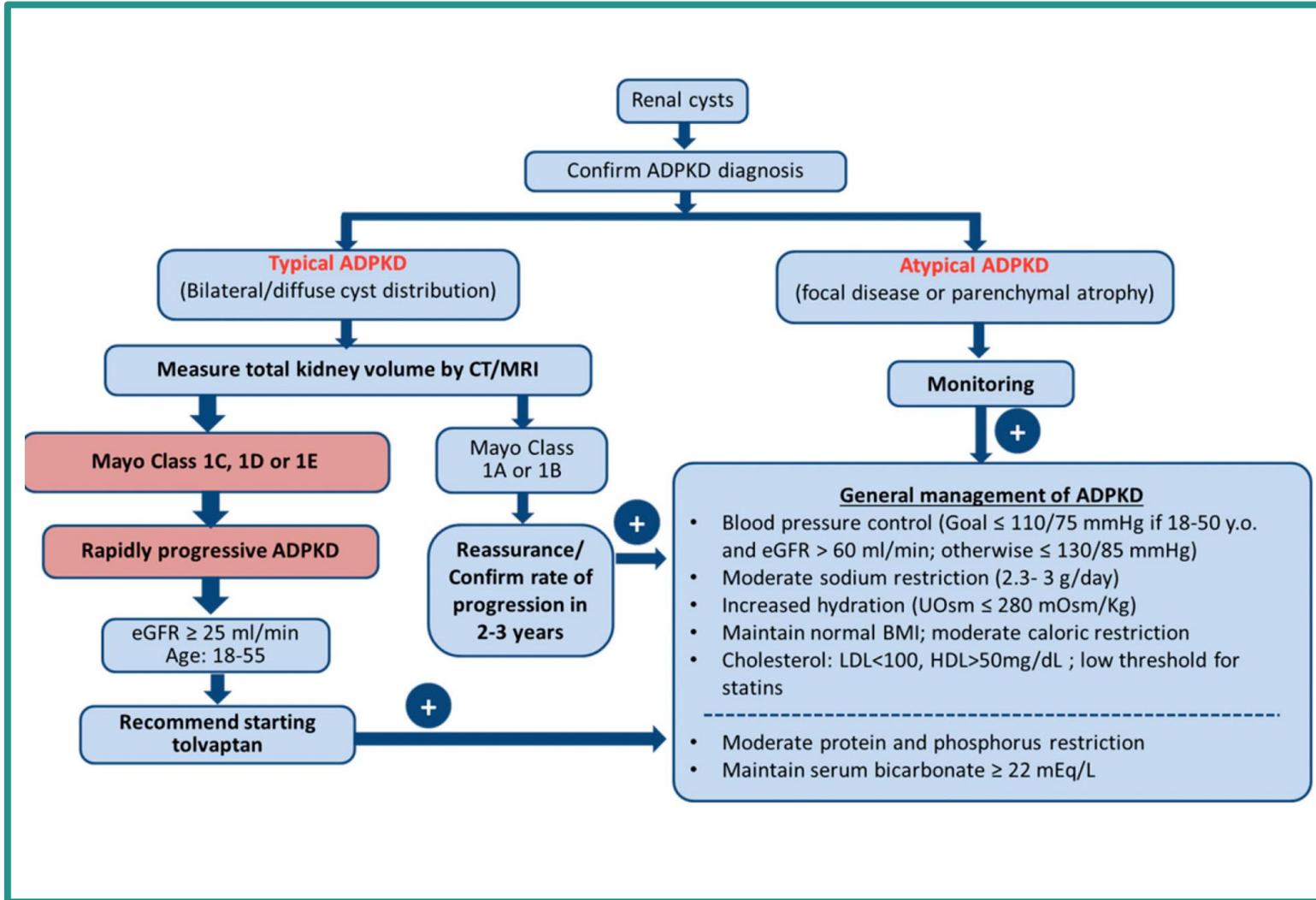
AND

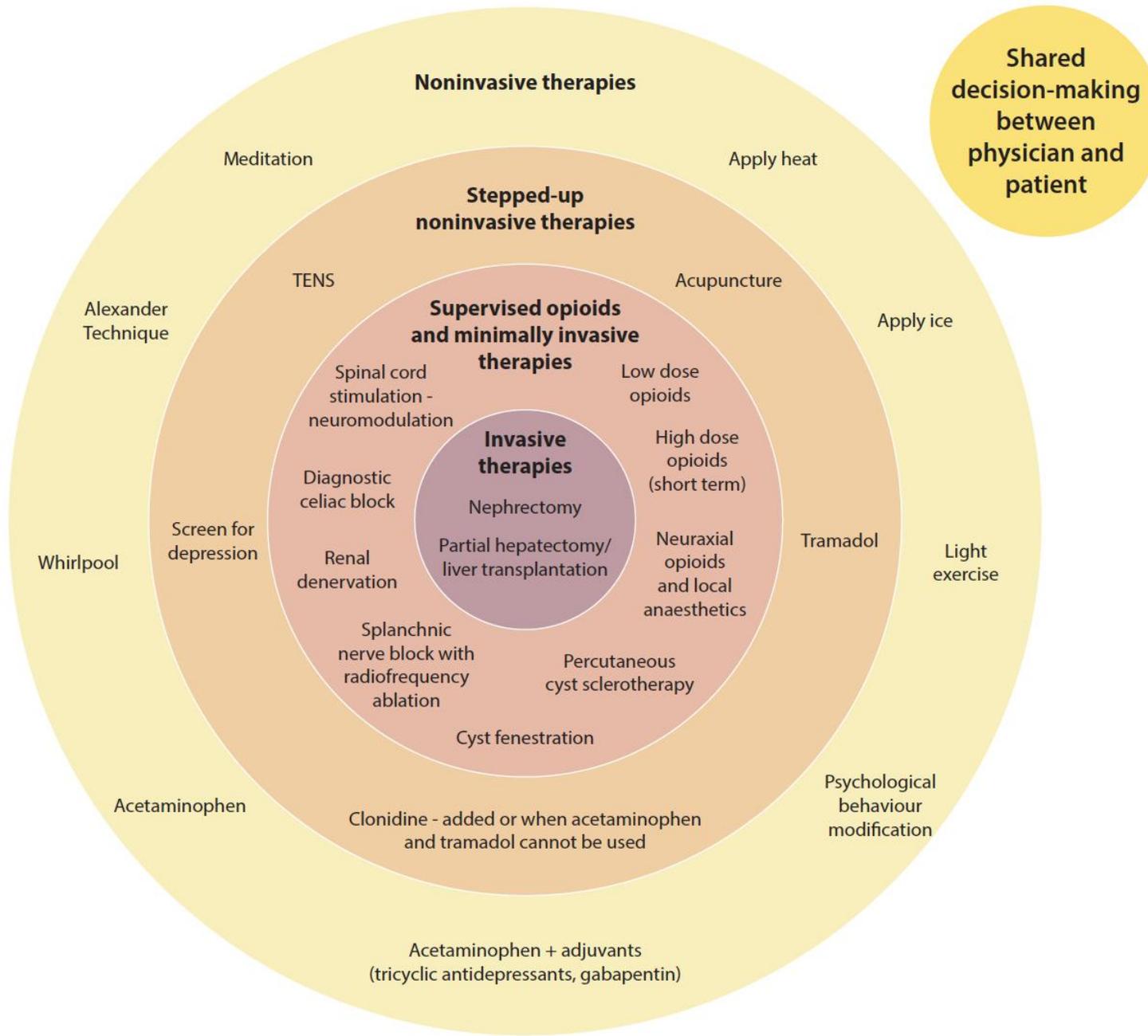
Risk of rapid disease progression* as indicated by either:

Mayo class 1C⁺ to 1E

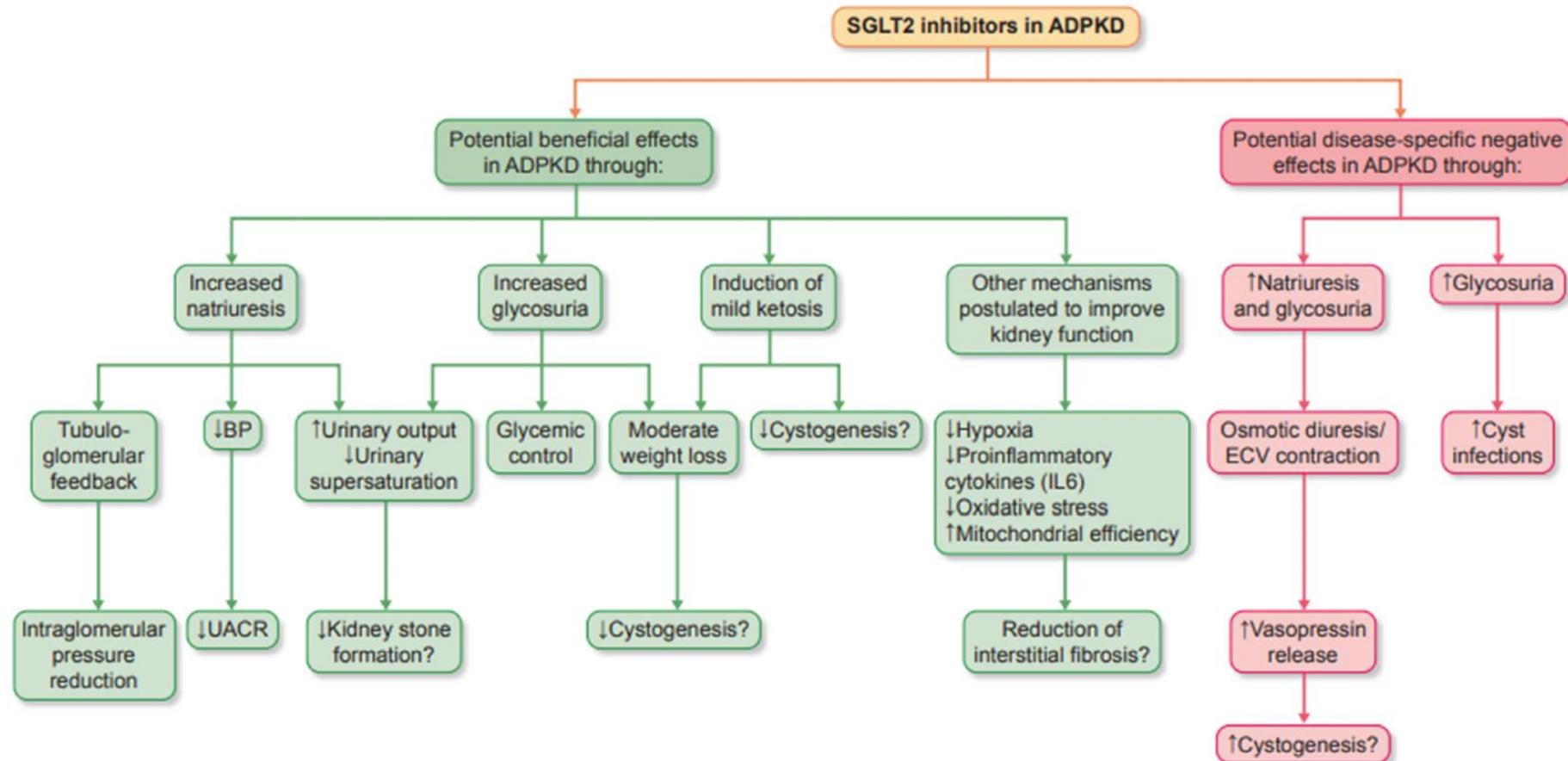
OR

Historical rate of eGFR decline[‡] (\geq 3 ml/min per 1.73 m² per year)





E os iSGLT2?



E os iSGLT2?

Table 1 Overview of Preclinical Evidence on SGLT2 Inhibitors in Polycystic Kidney Disease (PKD) Animal Models

study	model (origin of cysts)	SGLT2i	kidney function	kidney weight	other findings
Wang et al. KI 2013	Han:SPRD rat (proximal tubules)	phlorizin	↑	↓	albuminuria ↓
Rodriguez et al. Kidney Blood Press Res 2015	Han:SPRD rat (proximal tubules)	dapagliflozin	↑	↑	albuminuria ↓
Kapoor et al. PLoSOne 2015	PCK rat (collecting ducts, distal tubules, loop of Henle)	dapagliflozin	?	↑	albuminuria ↑
Leonhard et al. eBioMedicine 2019	<i>Pkd1^{fl/fl}</i> inducible (collecting ducts, distal and proximal tubules)	canagliflozin	↔	-	-

Table 2- Overview of Clinical Trials Investigating SGLT2 Inhibitors in Autosomal Dominant Polycystic Kidney Disease

Trial	Registry #	Design	N, duration	Key inclusion criteria	Primary outcome	Key secondary outcomes	Status
The effect of dapagliflozin in ADPKD patients using tolvaptan	JPRN-UMIN 000046275	Cross-over RCT, multicenter (Japan)	N = 30, 6 months	≥20y, only individuals already treated by Tolvaptan	Slope of eGFR decline	Change in TKV, BP, metabolic parameters, urine volume, UACR	Completed
Feasibility of Study of Empagliflozin in Patients with ADPKD	NCT05510115	RCT, parallel assignment, multicenter (USA)	N = 50, 12 months	18-55y; eGFR 30-90 ml/min/1.73m ² ; MIC 1C-1D-1E, Tolvaptan users excluded	Safety (adverse events, tolerability, adherence)	HtTKV; Kidney function; Aortic stiffness; Plasma copeptin levels and urinary kidney injury molecule-1; ADPKD Impact Scale.	Recruitment completed
EMPA-PKD (empagliflozin 10 mg)	NCT06391450	RCT, parallel assignment single center (Germany)	N = 44, 18 months	≥18y, eGFR 25-90 ml/min/1.73m ² , MIC 1C-1D-1E; Tolvaptan users eligible if taken ≥3 months	Change in total kidney volume (TKV) measured by MRI.	Change in eGFR, copeptin levels, albuminuria, and blood pressure.	Recruiting
SIDIA (empagliflozin 10 mg)	NCT06435858	Cross-over RCT, single center (Switzerland)	N = 40, 2 weeks	18-75y, eGFR>30ml/min/1.73m ²	Calcium, phosphate, Magnesium measured by fractional excretions	24-hour urine volume, tubular handling of other electrolytes, kidney function	In Preparation
DAPA-PKD (dapagliflozin 10 mg)	NA	Phase 3 RCT, parallel assignment, multi-center (France)	N=400, 24 months	18-75y, eGFR 25-90 ml/min/1.73m ² if age <60 or 25-45 ml/min/1.73m ² if age >60, MIC 1C-1D-1E or mean kidney length > 16.5 cm, Tolvaptan users excluded	Change of TKV measured by MRI	Chronic slope of eGFR decline and alternative kidney function outcomes, composite cardiovascular outcome, health related QoL, kidney stones, urinary infections	In Preparation
STOP-PKD (dapagliflozin 10 mg)	NA	Phase 3 RCT, parallel assignment, multi-center (Germany, The Netherlands, Spain, Austria)	N = 420, 36 months	18-60y, eGFR ≥ 25 ml/min/1.73m ² , MIC 1D-1E, or 1C with either a <i>PKD1</i> truncating variant, or eGFR loss >3 ml/min/1.73m ² /y, or a PROPKD score >6; Tolvaptan users excluded	Annual (chronic) slope of eGFR decline	Alternative kidney function outcomes, TKV, albuminuria, kidney stones, urinary infections, patient-reported outcome measures (QoL, pain, ADPKD-Impact scale)	In Preparation

Avaliação Metabólica e Tratamento Clínico da Litíase Urinária



Por que investigar?

- Recorrência



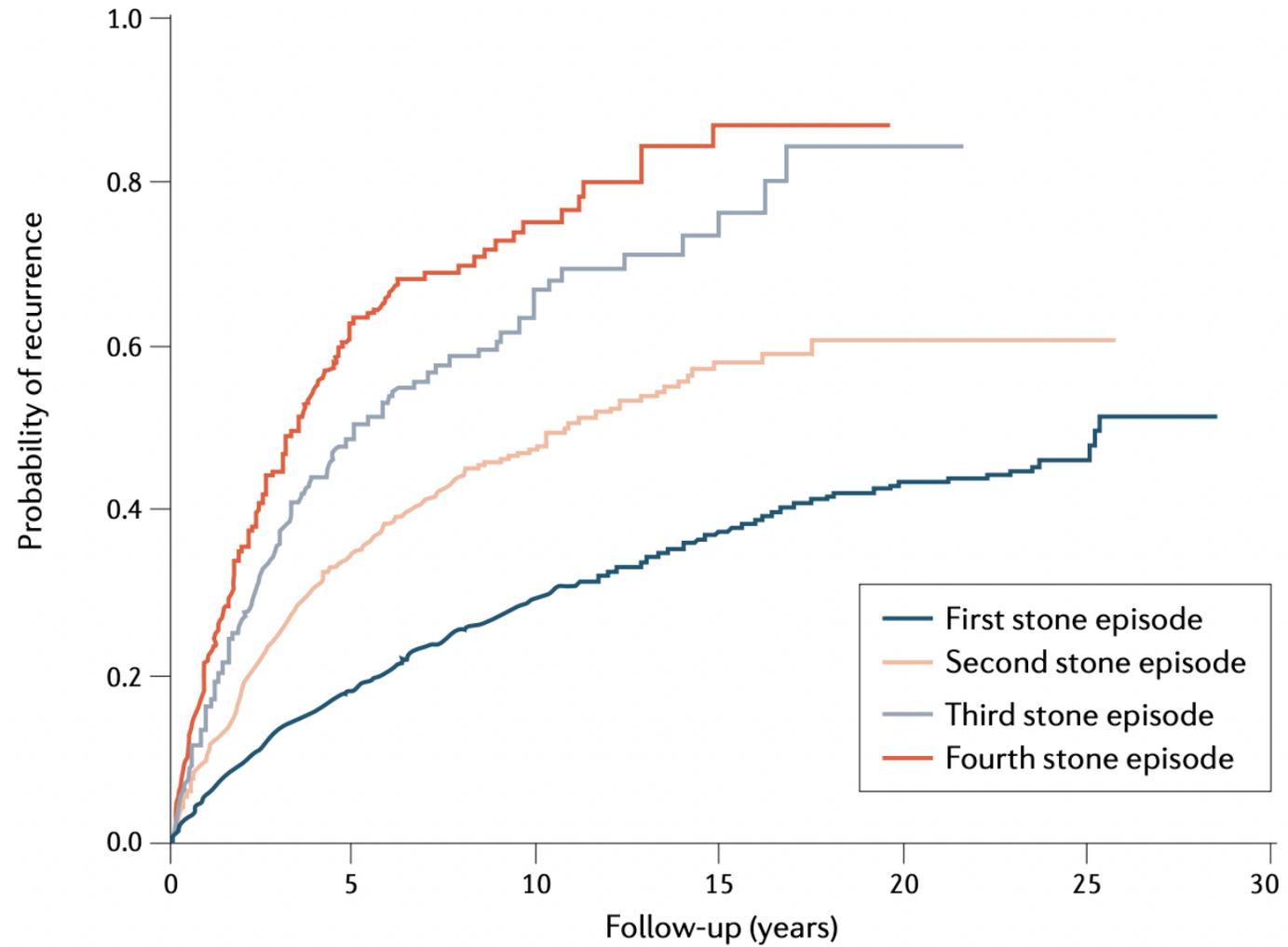


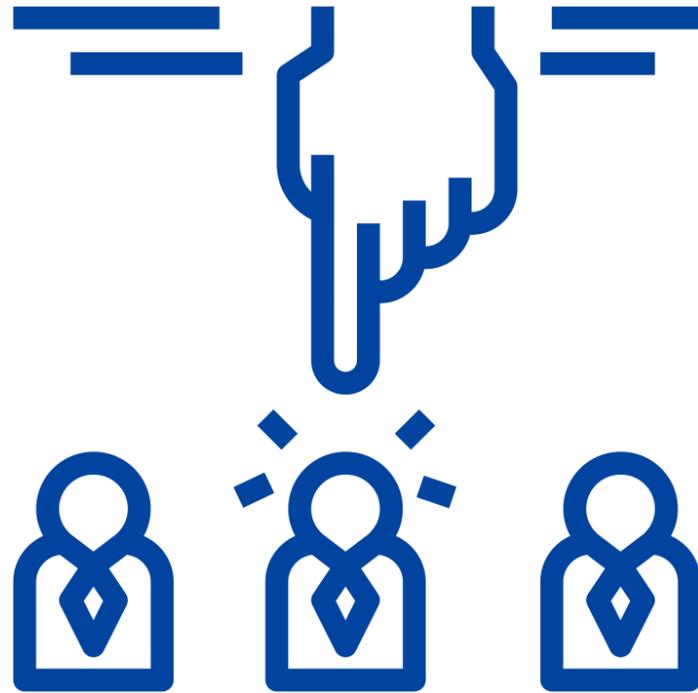
Fig. 3 | Cumulative risk of symptomatic recurrence resulting in clinical care after symptomatic kidney stone episodes. The data are from symptomatic kidney stone

EM QUEM INVESTIGAR

ALTO RISCO

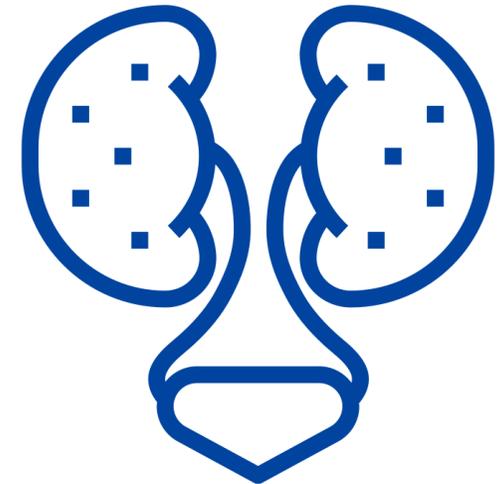
**BAIXO RISCO,
CALCULO ÚNICO OU
ASSINTOMÁTICO**

OPCIONAL

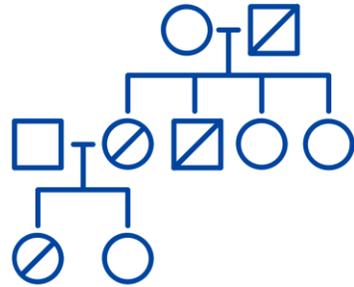


GERAIS

- Crianças
- História familiar
- Recorrência
- Reaparecimento rápido
- Infeccioso
- Rim Único
- DRC



Fatores de alto risco de recorrência



Geral (história familiar)



Doença associadas



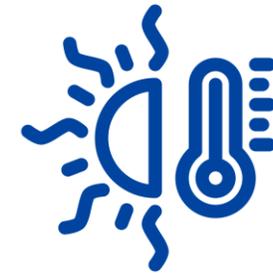
Genética



Alterações anatômicas



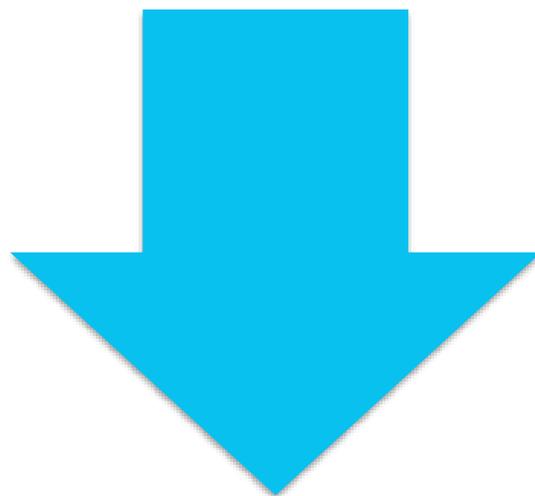
Medicamentos



Fatores ambientais

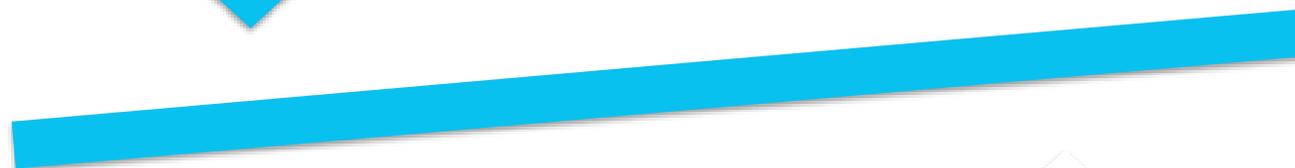
AVALIAÇÃO CLÍNICA E METABÓLICA





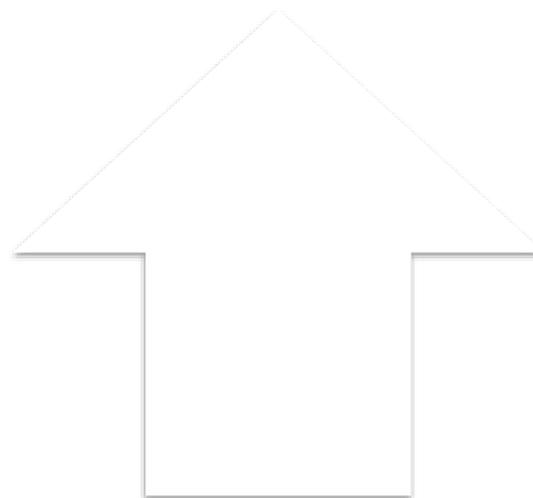
Inibidores

- Citrato
- Magnésio
- Pirofosfato
- Nefrocalcina
- Osteopontina
- Tamm-Horsfall



Formadores:

- Oxalato
- Cálcio
- Fosfato
- Ácido úrico
- Cistina



INVESTIGAÇÃO DIAGNÓSTICA - AMBULATORIAL

Sangue	Urina 24 horas
Creatinina	Creatinina
Sódio	Sódio
Cálcio	Cálcio
Ácido úrico	Ácido úrico
Fósforo	Fósforo
Potássio	Citrato
Uréia	Oxalato (magnésio?)
PTH	Cistina
25OH vitamina D	Cultura
Gasometria venosa/BIC	pH

CARACTERES DESCRITIVOS

Número de espécimes: **Três fragmentos idênticos**

Forma: **Irregular**

Cor: **Marrom/amarelo**

Hábito: **Botrioidal**

Peso total: **0,030 gramas**

Estrutura interna: **Laminada com alternância de camadas de oxalatos e camadas de ácido úrico**

COMPOSIÇÃO

Núcleo de crescimento: **Sem natureza específica**

Corpo: **100% ácido úrico monohidratado, traços oxalato de cálcio monohidratado, traços matriz orgânica amorfa**

Envoltório cristalino: **60% oxalato de cálcio monohidratado, 40% ácido úrico monohidratado, traços matriz orgânica amorfa**

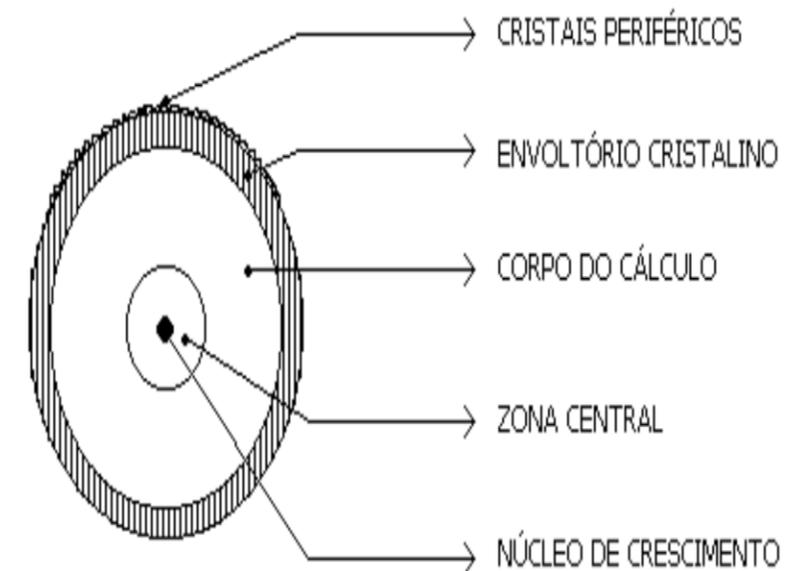
Cristais periféricos: **100% oxalato de cálcio dihidratado, traços matriz orgânica amorfa**



Escala foto: Intervalo entre traços = 1mm

Data: 18/11/2016

ESTRATIGRAFIA DO CÁLCULO URINÁRIO



<https://eranefrologia.com.br/>

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REALIZAR EXAME



O ERA realiza a Análise
Cristalográfica de Cálculos Renais

Realizar Exame



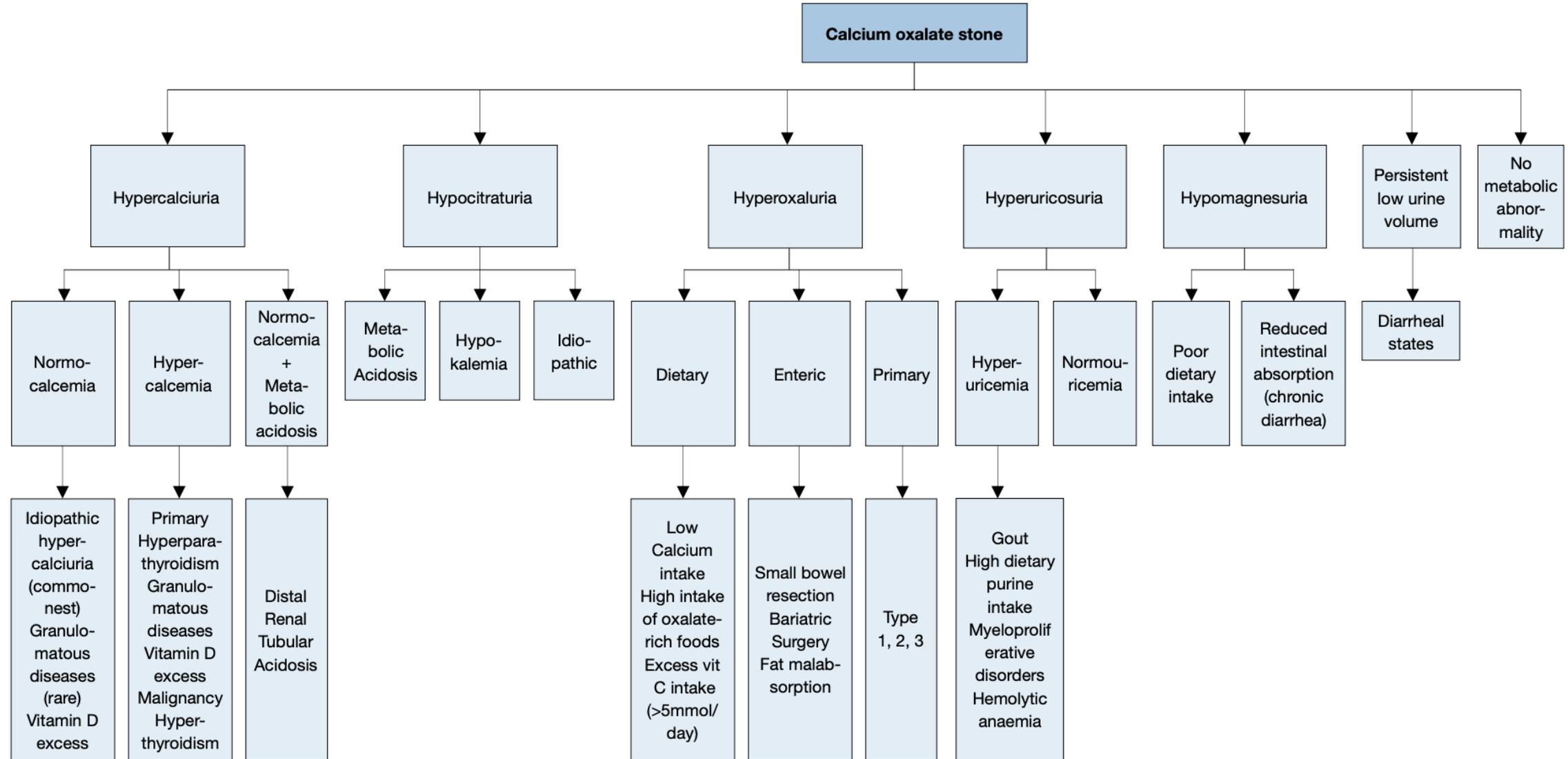
TRATAMENTO



PROFILAXIA GERAL

- **Aumento da ingestão hídrica** (diurese diária > 2000mL por dia)- 30mL/kg
- **Consumo de cálcio normal** (800-1000mg/dia)
- **Ingesta protéica: 0,8-1g/kg/dia →**
- Dietas com alto teor de sódio diminuem a reabsorção do cálcio → recomendado **2g de Na / dia;**

EAU Guidelines on Urolithiasis



HIPOCITRATÚRIA

CITRATO DE POTÁSSIO

- Apresentação: fr. c/ 60 compr. c/ 15mEq, 10 mEq e 5 mEq
- Durante as refeições ou até 30 minutos após as refeições ou lanches.

> 150 mg: dose inicial de 30 mEq/dia (10 mEq três vezes ao dia).

< 150 mg: 20 mEq três vezes ao dia ou 15 mEq quatro vezes ao dia

**ATENÇÃO PARA PACIENTES
COM DRC, EM USO DE
ESPIRONOLACTONA e DM**

EAU Guidelines on Urolithiasis

Urinary risk factor	Suggested treatment	LE	GR
Hypercalciuria	Thiazide + potassium citrate	1a	A
Hyperoxaluria	Oxalate restriction	2b	A
Enteric hyperoxaluria	Potassium citrate	3-4	C
	Calcium supplement	2	B
	Diet reduced in fat and oxalate	3	B
Hypocitraturia	Potassium citrate	1b	A
Hypocitraturia	Sodium bicarbonate if intolerant to potassium citrate	1b	A
Hyperuricosuria	Allopurinol	1a	A
	Febuxostat	1b	A
High sodium excretion	Restricted intake of salt	1b	A
Small urine volume	Increased fluid intake	1b	A
Urea level indicating a high intake of animal protein	Avoid excessive intake of animal protein	1b	A
No abnormality identified	High fluid intake	2b	B

<https://uroweb.org/guidelines/urolithiasis>



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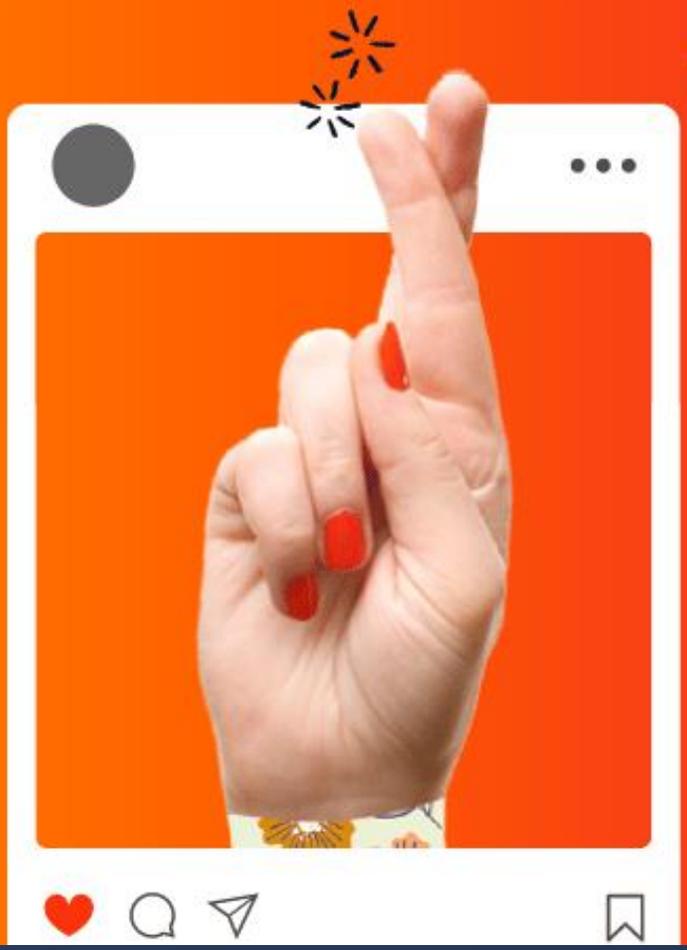
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NEFROATUAL:

NEFROATUAL:

Tópicos essenciais para a Prova
de Título de Nefrologia

Tópicos essenciais para a Prova
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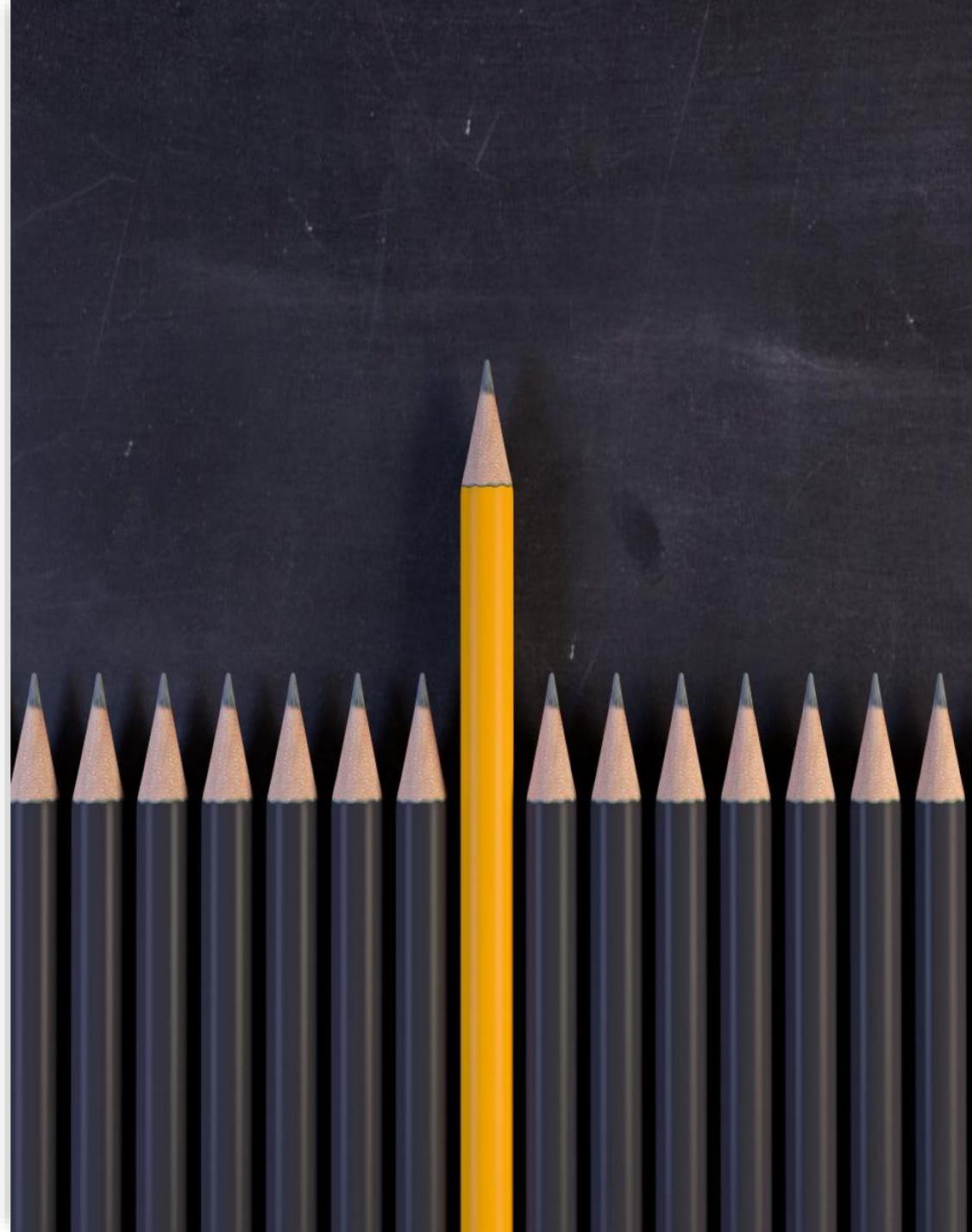


 **nefro**atual

Tarefa do dia

Qual o maior insight?

Vai lá no post da aula de hoje e comentar **o maior insight da aula de hoje.**



AULA 3

COMO ATRAIR MAIS PACIENTES E EXPANDIR SEU CONSULTÓRIO + ATUALIZAÇÕES SOBRE GLOMERULOPATIAS

Dicas valiosas que fazem seu
paciente fidelizar e lembrar de você
para sempre.

