TM

HUNGARIAN
PANCREATIC
STUDY GROUP

Krónikus pancreatitis kezelése

Erőss Bálint

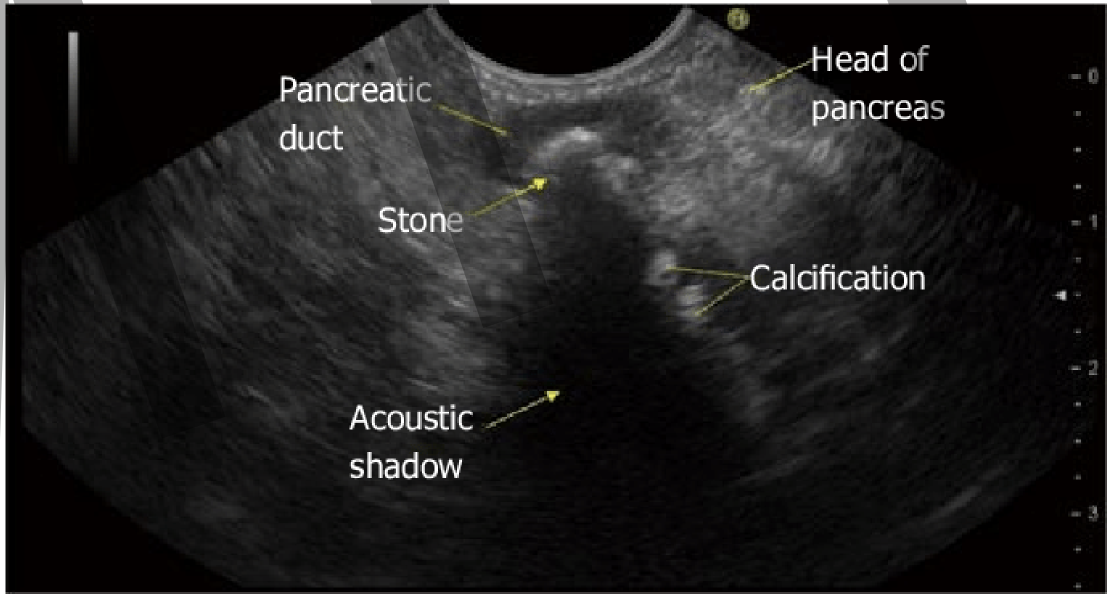
Pankreász Betegségek Intézete, Semmelweis Egyetem

Visegrád, 2025 10.10.

EUS, MRI, and CT are the best imaging methods for establishing a diagnosis of CP. **(GRADE 1C, strong agreement)**

Alapja a képalkotás: meszesedések, vezeték tágulat, atrophia

radiopedia.org



Somani et al.

EUS is the most sensitive imaging technique for the diagnosis of CP, mainly during the early stages of the disease, and its specificity increases with increasing diagnostic criteria. **(GRADE 1B, strong agreement)**

Funkcionális teszt (széklet elasztáz-1) elvégzése szükséges a diagnózis megerősítéséhez.

A function test is required for the diagnosis of CP. **(Grade 2B, strong agreement)**

Ismeretlen etiológia esetén autoimmun vizsgálatok elvégzése szükséges.

A diagnosis of cystic fibrosis needs to be ruled out in all patients with CP onset before the age of 20 years as well as in patients with so-called 'idiopathic' CP (regardless of the age of onset). **(GRADE 1B, strong agreement)**

If no other aetiology of CP can be identified in a patient then a diagnosis of AIP should be ruled out. **(GRADE 2C, strong agreement)**

Korai kezdetben, illetve pozitív családi anamnézis esetén **genetikai vizsgálatok** elvégzése szükséges.

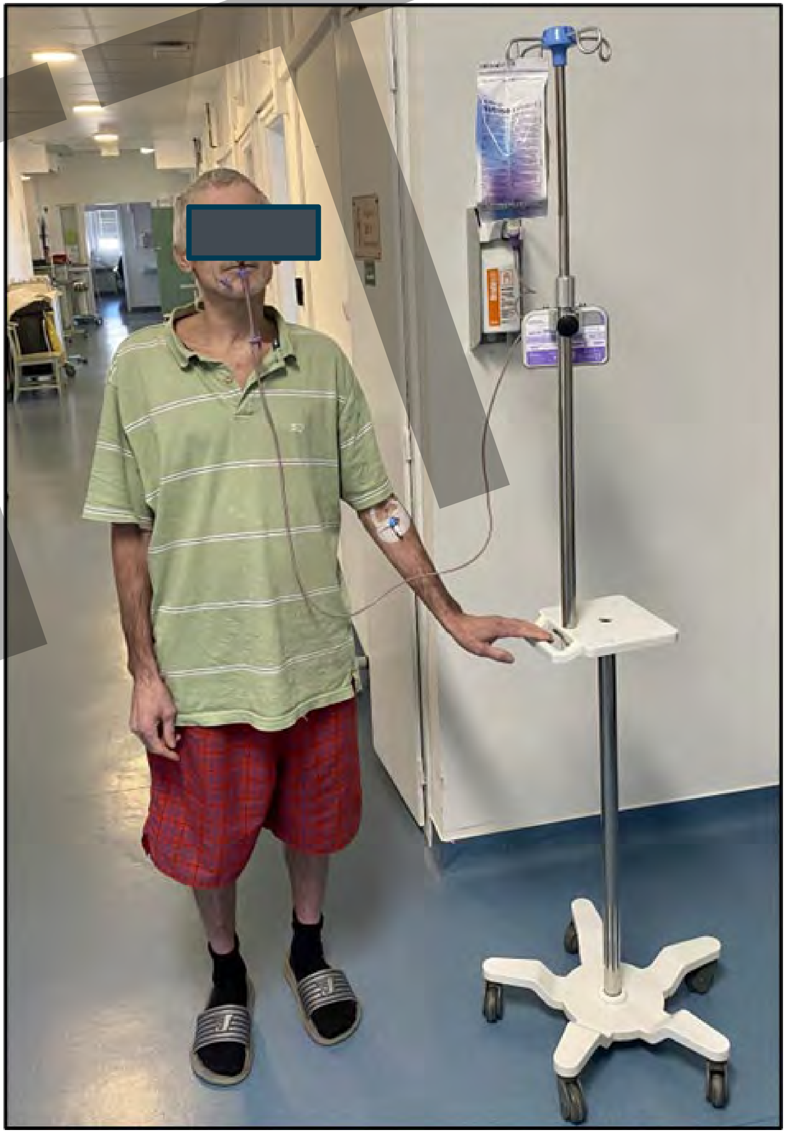
All patients with a family history or early onset disease (<20 years) should be offered genetic testing for associated variants. **(GRADE 2C, strong agreement)**

Felvételkor:

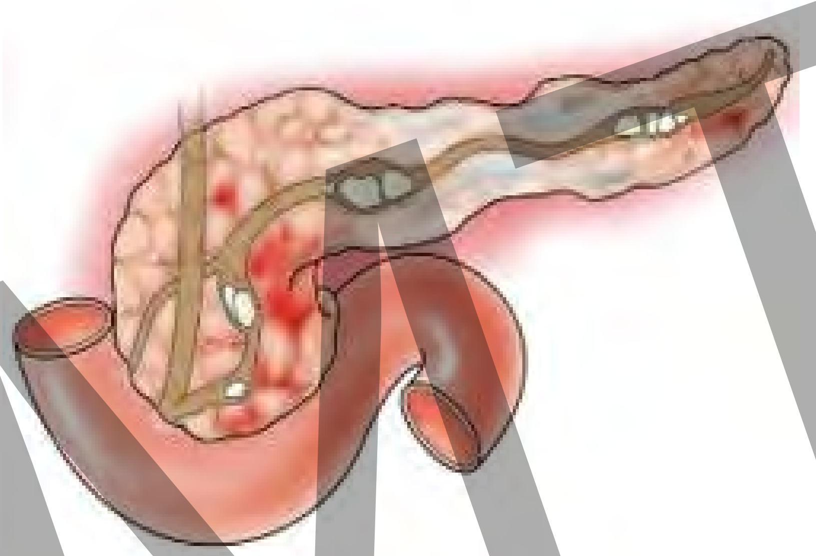
8 korábbi alkoholos AP
ACP biliáris
TS: 44 kg
BMI: 14.9 kg/m^2
Testzsír: 3,1%
MUST 6

Bennfkvés során:

- **+100 nap**
- **ERCP**
- **Enterális és parenteralis táplálás**
- **Gastro-Wirsungostomia és műtét**
- **Sebészi jejunostomia**
- **ITO**
- **CVK szepszis**



Krónikus pancreatitis



Előtte

PREVENCIÓ

Kialakult betegség

UTÁNKÖVETÉS

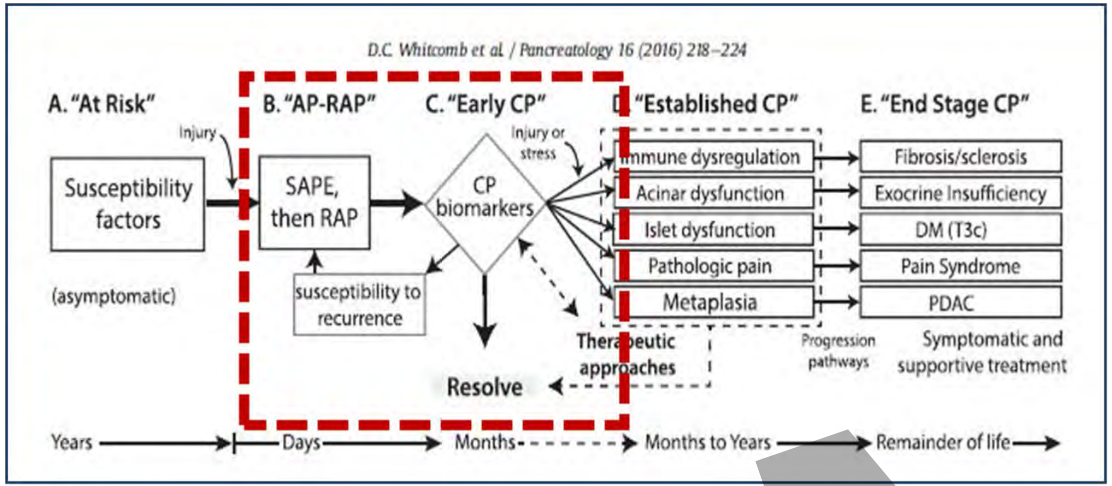
Akut fellángolás

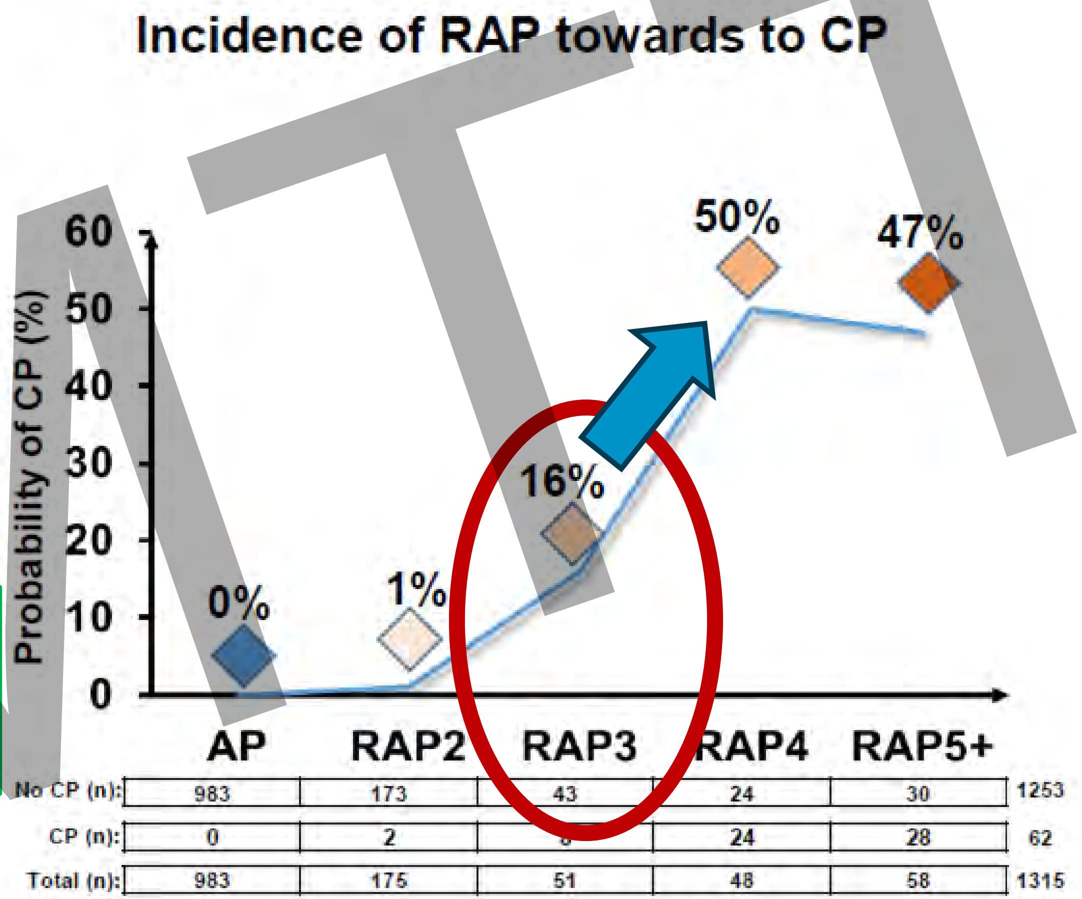
KEZELÉS

DM

PC

RAP





	AP	RAP2	RAP3	RAP4	RAP5+	
No CP (n):	983	173	43	24	30	1253
CP (n):	0	2	8	24	28	62
Total (n):	983	175	51	48	58	1315

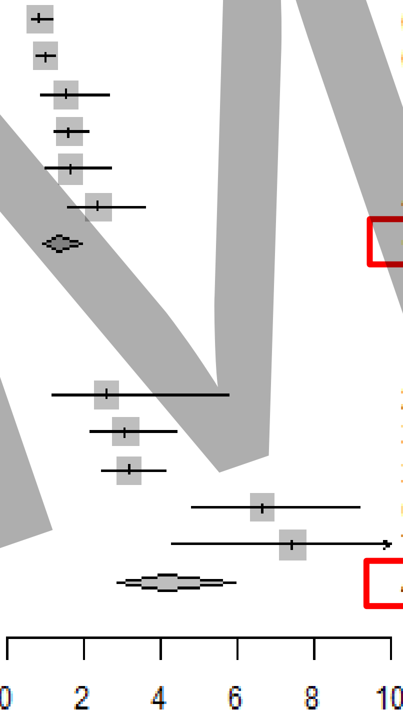
- 3≤ RAP
- Radiológiai jelek nélkül

Early Chronic Pancreatitis (ECP)

Hegyi PJ. Evidence for diagnosis of early chronic pancreatitis after three episodes of acute pancreatitis: a cross-sectional multicentre international study with experimental animal model. **Sci Rep.** 2020

CP AP és RAP után

Author	CP	AP	Total 100 person years	incidence rate (CP mean/100 person-years)	Rate	95%-CI
First AP						
Magnusdottir et al. 2019	40	1102	47.753		0.838	[0.614; 1.142]
Bertilsson et al. 2015	79	1457	80.985		0.975	[0.782; 1.216]
Cavestro et al. 2014	13	196	8.575		1.516	[0.880; 2.611]
Ahmed et al. 2016	51	669	31.889		1.599	[1.215; 2.104]
Kim, Y et al. 2020	15	313	9.155		1.638	[0.988; 2.718]
Stigliano et al. 2017	22	266	9.310		2.363	[1.556; 3.589]
Overall effect	.				**1.336**	**[0.912; 1.958]**
I^2 = 80% [56%; 91%]						
RAP						
Stigliano et al. 2017	6	66	2.310		2.597	[1.167; 5.782]
Magnusdottir et al. 2019	30	225	9.750		3.077	[2.151; 4.401]
Bertilsson et al. 2015	58	329	18.287		3.172	[2.452; 4.103]
Ahmed et al. 2016	37	117	5.577		6.634	[4.807; 9.157]
Cavestro et al. 2014	13	40	1.750		7.429	[4.313; 12.793]
Overall effect	.				**4.126**	**[2.882; 5.906]**
I^2 = 81% [55%; 92%]						

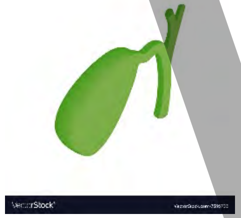


~ 1 eset/100 páciens-év

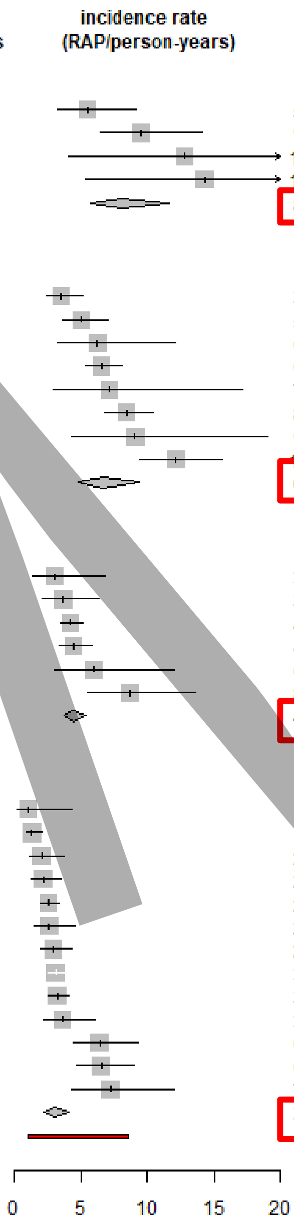
~ **4 eset** per 100 páciens-év

Gagyi EB, **TAG**, 2024

RAP az AP etiológiák alapján



Author	RAP	AP	Total person years	Rate	95%-CI
Hypertriglyceridaemia					
Vipperla et al. 2016	15	65	3	5.516	[3.326; 9.150]
Yu et al. 2020	25	116	3	9.508	[6.425; 14.071]
Kim, Y et al. 2020	3	8	0	12.821	[4.135; 39.751]
Stigliano et al. 2017	4	8	0	14.286	[5.362; 38.063]
Overall effect	.			**8.143**	**[5.705; 11.621]**
I^2 = 36% [0%; 78%]					
Alcoholic					
Nikkola et al. 2016	27	77	8	3.506	[2.405; 5.113]
Ahmed et al. 2016	37	153	7	5.073	[3.676; 7.002]
Stigliano et al. 2017	9	41	1	6.272	[3.263; 12.054]
Bertilsson et al. 2015	91	249	14	6.575	[5.354; 8.075]
Cavestro et al. 2014	5	16	1	7.143	[2.973; 17.161]
Magnusdottir et al. 2019	83	227	10	8.438	[6.805; 10.463]
Yu et al. 2020	7	34	1	9.083	[4.330; 19.053]
Kim, Y et al. 2020	59	166	5	12.151	[9.415; 15.683]
Overall effect	.			**6.731**	**[4.799; 9.442]**
I^2 = 82% [65%; 90%]					
Idiopathic					
Kim, Y et al. 2020	6	67	2	3.062	[1.375; 6.815]
Valverde et al. 2020	13	78	4	3.688	[2.141; 6.351]
Bertilsson et al. 2015	101	431	24	4.216	[3.469; 5.124]
Magnusdottir et al. 2019	55	283	12	4.485	[3.443; 5.842]
Stigliano et al. 2017	8	38	1	6.015	[3.008; 12.028]
Cavestro et al. 2014	19	50	2	8.686	[5.540; 13.617]
Overall effect	.			**4.467**	**[3.728; 5.352]**
I^2 = 53% [0%; 81%]					
Biliary					
Yoon et al. 2015	2	92	2	1.078	[0.270; 4.310]
Hallensleben et al. 2021	21	248	16	1.337	[0.872; 2.051]
Cavestro et al. 2014	11	122	5	2.061	[1.141; 3.721]
Yu et al. 2020	16	326	7	2.165	[1.327; 3.534]
Ahmed et al. 2016	47	384	18	2.568	[1.929; 3.418]
Ridtitid et al. 2018	13	130	5	2.626	[1.525; 4.522]
Lee et al. 2016	24	171	8	2.904	[1.946; 4.332]
Bertilsson et al. 2015	122	704	39	3.118	[2.611; 3.723]
Magnusdottir et al. 2019	63	450	19	3.231	[2.524; 4.136]
Bang et al. 2015	15	119	4	3.645	[2.197; 6.046]
Stigliano et al. 2017	28	125	4	6.400	[4.419; 9.269]
Kim, S et al. 2016	35	290	5	6.524	[4.684; 9.086]
Kim, Y et al. 2020	15	71	2	7.223	[4.354; 11.981]
Overall effect	.			**3.060**	**[2.259; 4.145]**
Prediction interval	.		.		[1.000; 8.518]
I^2 = 82% [71%; 89%]					



~ **8 eset**/100 páciens-év

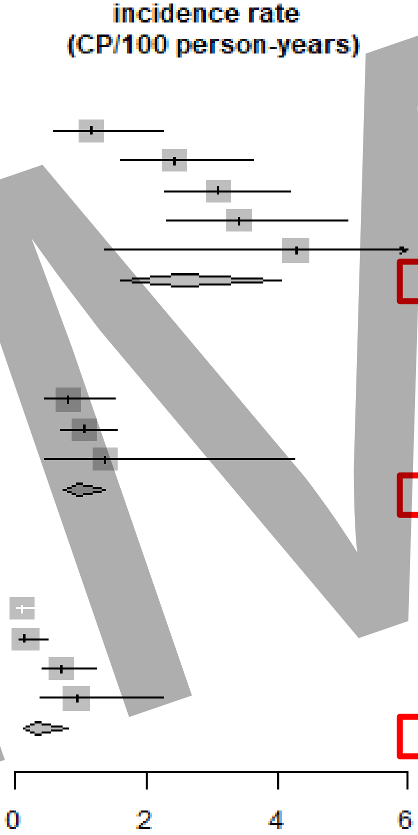
~ **7 eset**/100 páciens-év

~ 4 eset/100 páciens-év

~ 3 eset/100 páciens-év

CP az AP etiológiák alapján

Author	CP	AP	Total 100 person years	Rate	95%-CI
Alcoholic					
Nikkola et al. 2016	9	77	7.700	1.169	[0.608; 2.246]
Magnusdottir et al. 2019	24	227	9.837	2.440	[1.635; 3.640]
Bertilsson et al. 2015	43	249	13.840	3.107	[2.304; 4.189]
Ahmed et al. 2016	25	153	7.293	3.428	[2.316; 5.073]
Cavestro et al. 2014	3	16	0.700	4.286	[1.382; 13.288]
Overall effect	.			**2.550**	**[1.610; 4.038]**
I^2 = 57% [0%; 84%]					
Idiopathic					
Magnusdottir et al. 2019	10	283	12.263	0.815	[0.439; 1.516]
Bertilsson et al. 2015	25	431	23.956	1.044	[0.705; 1.544]
Cavestro et al. 2014	3	50	2.188	1.371	[0.442; 4.252]
Overall effect	.			**0.989**	**[0.720; 1.360]**
I^2 = 0% [0%; 90%]					
Biliary					
Bertilsson et al. 2015	4	704	39.131	0.102	[0.038; 0.272]
Magnusdottir et al. 2019	3	450	19.500	0.154	[0.050; 0.477]
Ahmed et al. 2016	13	384	18.304	0.710	[0.412; 1.223]
Cavestro et al. 2014	5	122	5.337	0.937	[0.390; 2.251]
Overall effect	.			**0.311**	**[0.121; 0.800]**
I^2 = 83% [57%; 93%]					



~ **3 cases** per 100 person-years

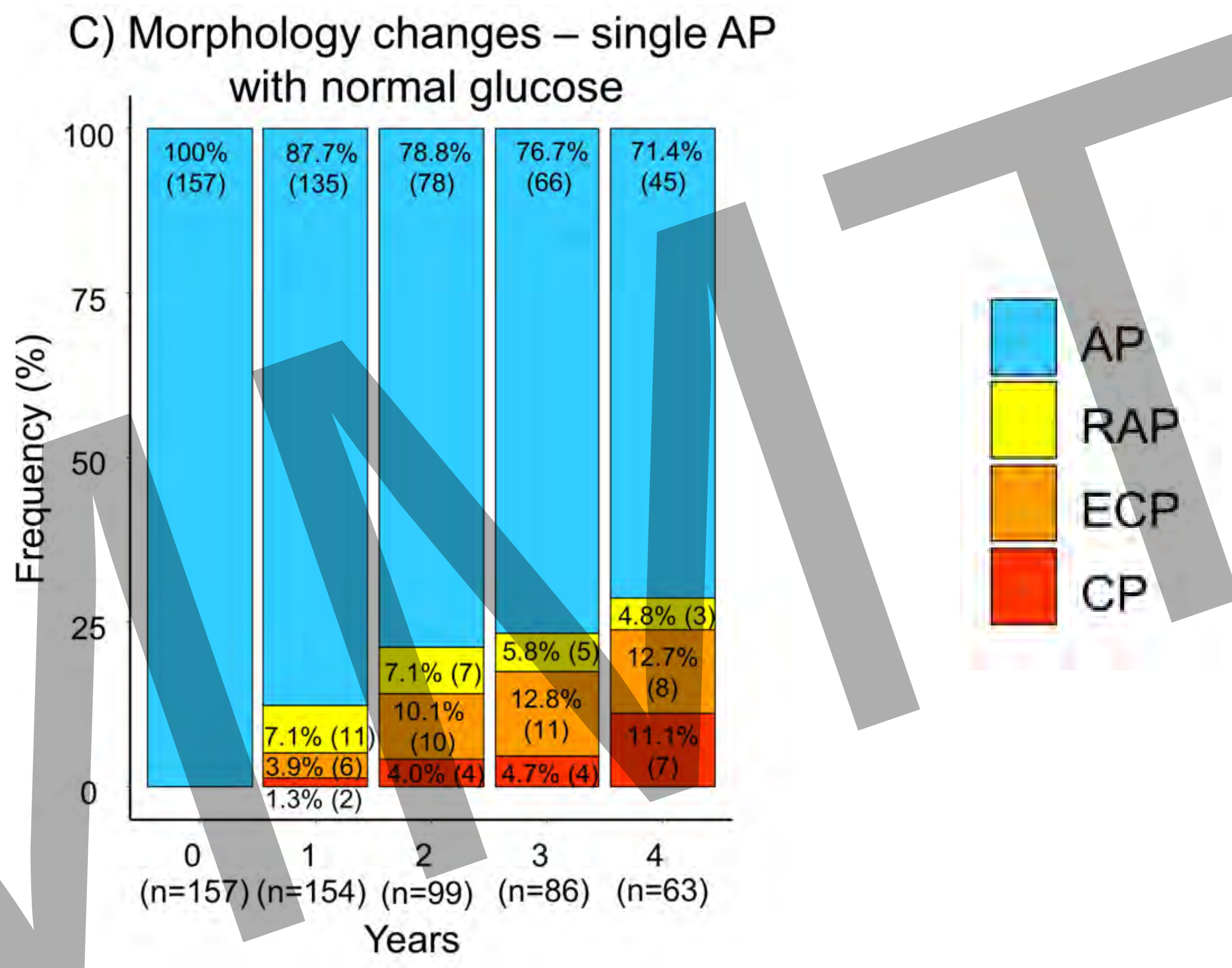
~ 1 cases per 100 person-years

~ 0,3 cases per 100 person-years

Observational longitudinal multicentre investigation of acute pancreatitis (GOULASH PLUS): follow-up of the GOULASH study, protocol

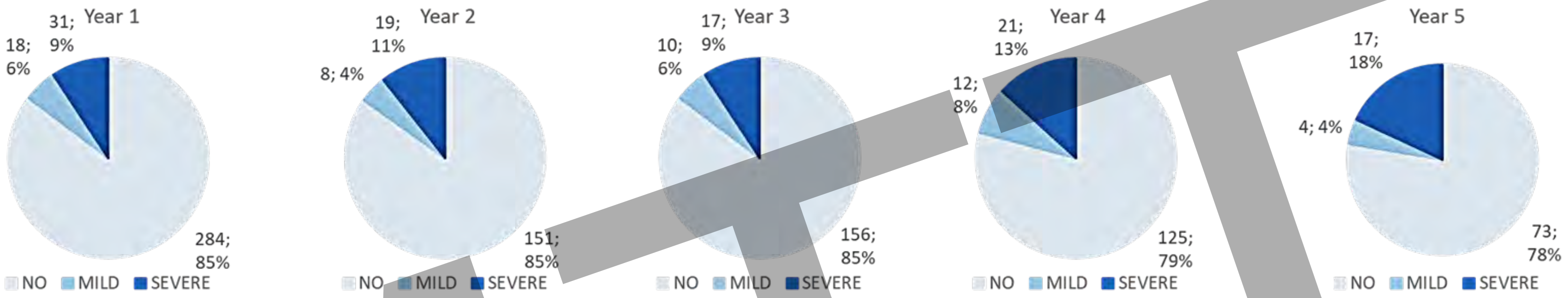
Mikó A BMJ Open. 2019

AP után RAP, ECP és CP



Mikó A, Hegyi P Progression of Pancreatic Morphological Changes and Endocrine Dysfunction After Acute Pancreatitis: Preliminary results of a longitudinal GOULASH Plus cohort studyGastroenterology - ACCEPTED 2025

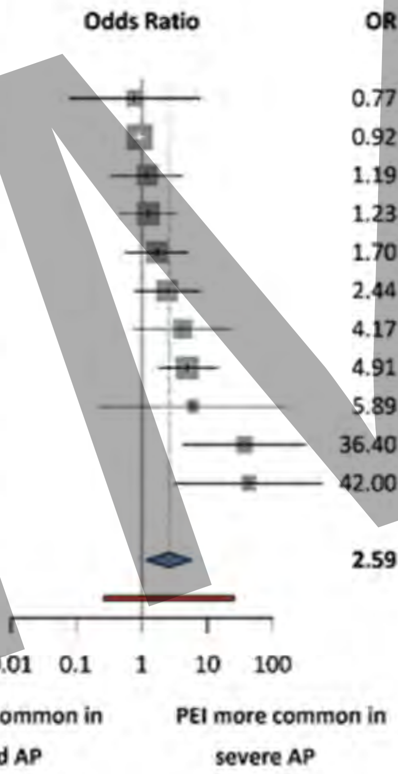
Pancreatic Exocrine Insufficiency (low fecal elastase)



Mikó A (unpublished 2025)

Study	Severe AP Events	Severe AP Total	Mild AP Events	Mild AP Total	OR	95% CI	Weight
Pelli et al (2009)	1	13	4	41	0.77	[0.08; 7.58]	5.96%
Te- Wei Ho et al. (2015)	335	765	5282	11519	0.92	[0.79; 1.07]	15.16%
Tu et al (2017)	34	91	4	12	1.19	[0.33; 4.26]	10.28%
Xu et al (2012)	23	38	15	27	1.23	[0.45; 3.33]	11.75%
Garip et al. (2013)	7	39	8	70	1.70	[0.56; 5.10]	11.21%
Koziel (2017)	17	99	4	51	2.44	[0.77; 7.67]	10.96%
Symersky et al. (2006)	10	12	12	22	4.17	[0.74; 23.61]	8.04%
Castoldi et al (2013)	6	73	10	558	4.91	[1.73; 13.93]	11.52%
Andersson et al. (2010)	1	14	0	26	5.89	[0.22; 154.48]	3.64%
Yulin Guo et al. (2023)	14	24	1	27	36.40	[4.22; 314.33]	6.39%
Boreham et al. (2003)	6	7	2	16	42.00	[3.17; 556.48]	5.10%
Random effects model	**454**	**1175**	**5342**	**12369**	**2.59**	**[1.15; 5.85]**	**100.00%**
Prediction interval						**[0.27; 25.03]**	

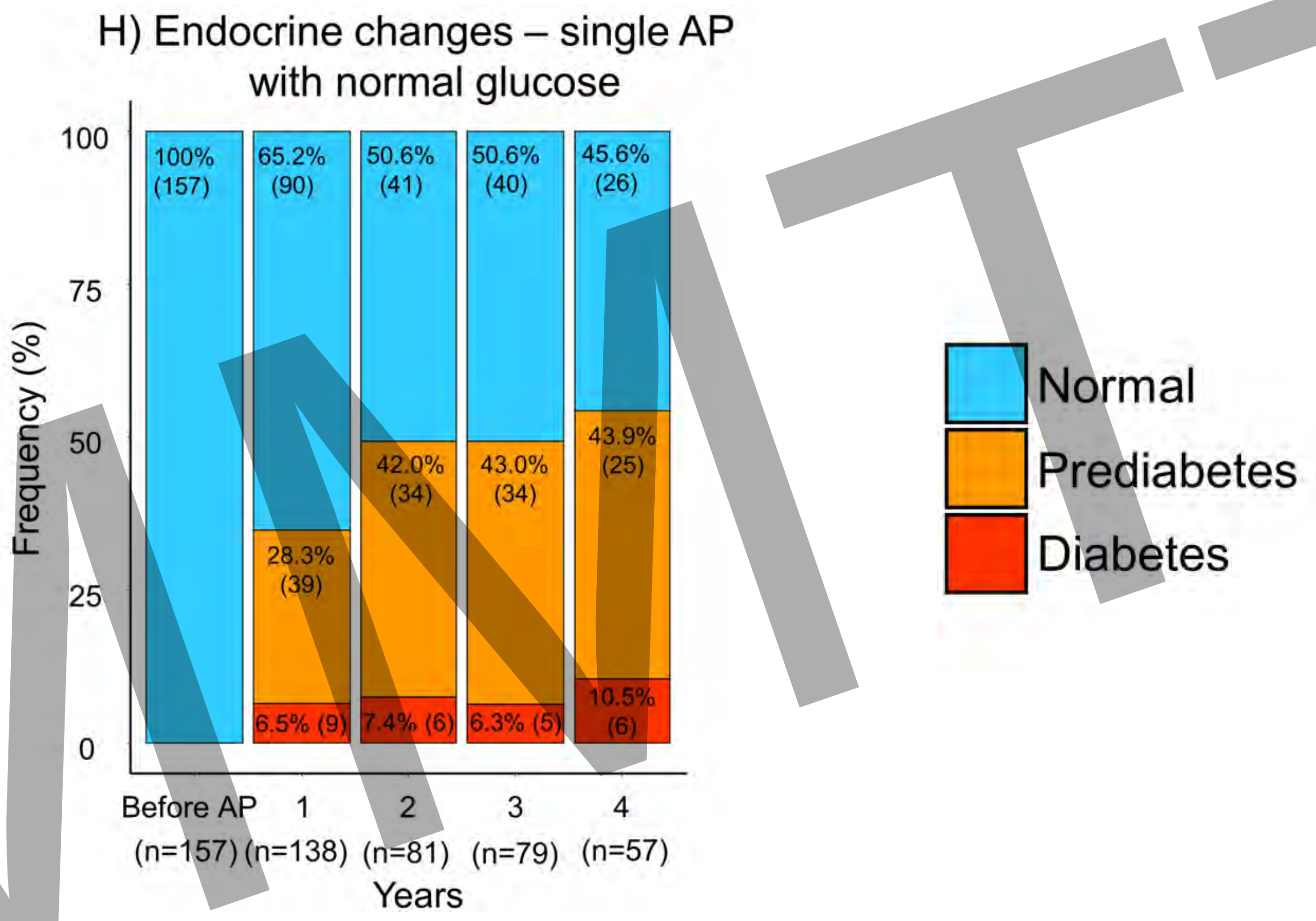
Heterogeneity: $I^2 = 72\%$ [49%; 85%], $\tau^2 = 0.87$, $p < 0.001$
Test for overall effect: $t_{10} = 2.61$ ($p = 0.026$)



HUNGARIAN PANCREATIC STUDY GROUP

Eperjesi O Risk Factors for Pancreatic Exocrine Insufficiency after Acute Pancreatitis:
A Systematic Review and Meta-analysis Pancreatology UNDER REVIEW (2025)

DIABETES PROGRESSZIÓ



Mikó A, **Hegyi P** Progression of Pancreatic Morphological Changes and Endocrine Dysfunction After Acute Pancreatitis: Preliminary results of a longitudinal GOULASH Plus cohort studyGastroenterology - ACCEPTED 2025

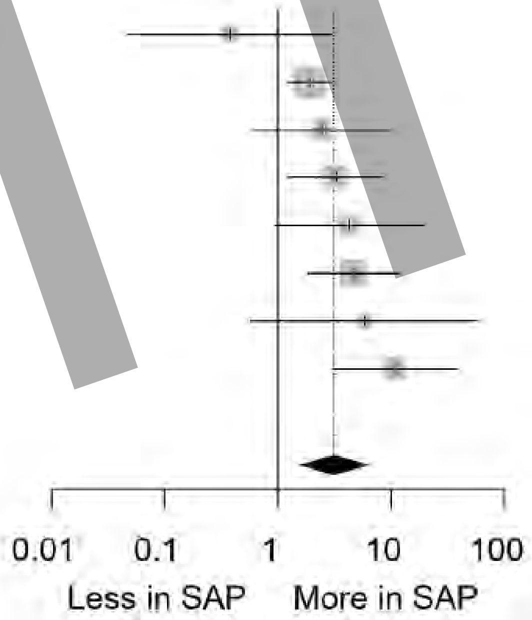
RISK OF PREDIABETES AND DIABETES AFTER AP

Semmelweis Egyetem
PANKREÁSZ BETEGSÉGEK KIVÁLÓSÁGI KÖZPONTJA

Study	Exposed PD/DM	Exposed SAP	Control PD/DM	Control MAP+MSAP	OR	95%-CI	Weight
Yuan et al., 2017	1	10	68	300	0.38	[0.05; 3.05]	5.8%
Yu et al., 2020	60	115	90	246	1.89	[1.21; 2.96]	25.3%
Miko et al., 2022b	7	10	82	168	2.45	[0.61; 9.78]	10.5%
Tu et al., 2017	59	91	8	22	3.23	[1.22; 8.51]	15.8%
Andersson et al., 2010	10	13	11	25	4.24	[0.93; 19.26]	9.3%
Garip et al., 2013	18	31	15	65	4.62	[1.84; 11.55]	16.6%
Pendharkar et al., 2018b	3	4	27	79	5.78	[0.57; 58.23]	4.9%
Malecka-Panas et al., 2002	13	28	4	54	10.83	[3.07; 38.21]	11.8%
Random effect	**171**	**302**	**305**	**959**	**3.13**	**[1.60; 6.11]**	**100.0%**

$I^2 = 45\%$ [0%; 76%] , $\tau = 0.51$

OR of PD/PM



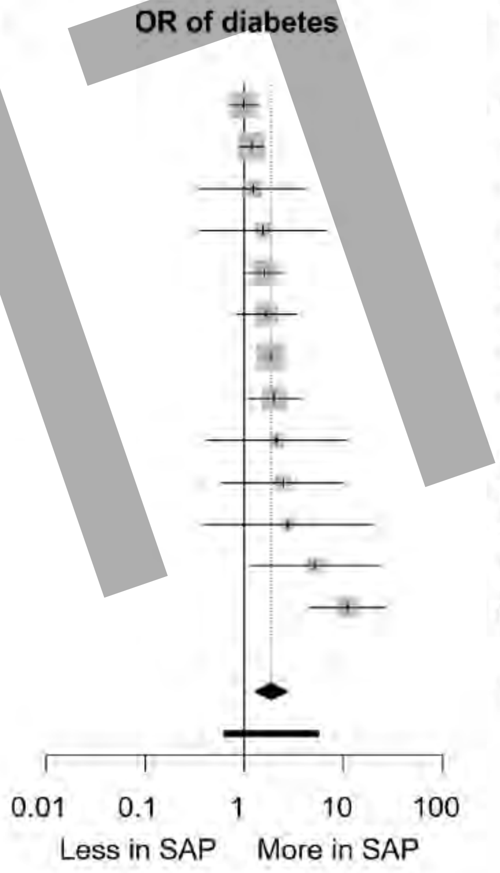
Zahariev O Hegyi P Risk factors for diabetes mellitus after acute pancreatitis: a systematic review and meta-analysis. **Front. Med.** 2024

RISK OF DIABETES AFTER AP

Semmelweis Egyetem
PANKREÁSZ BETEGSÉGEK KIVÁLÓSÁGI KÖZPONTJA

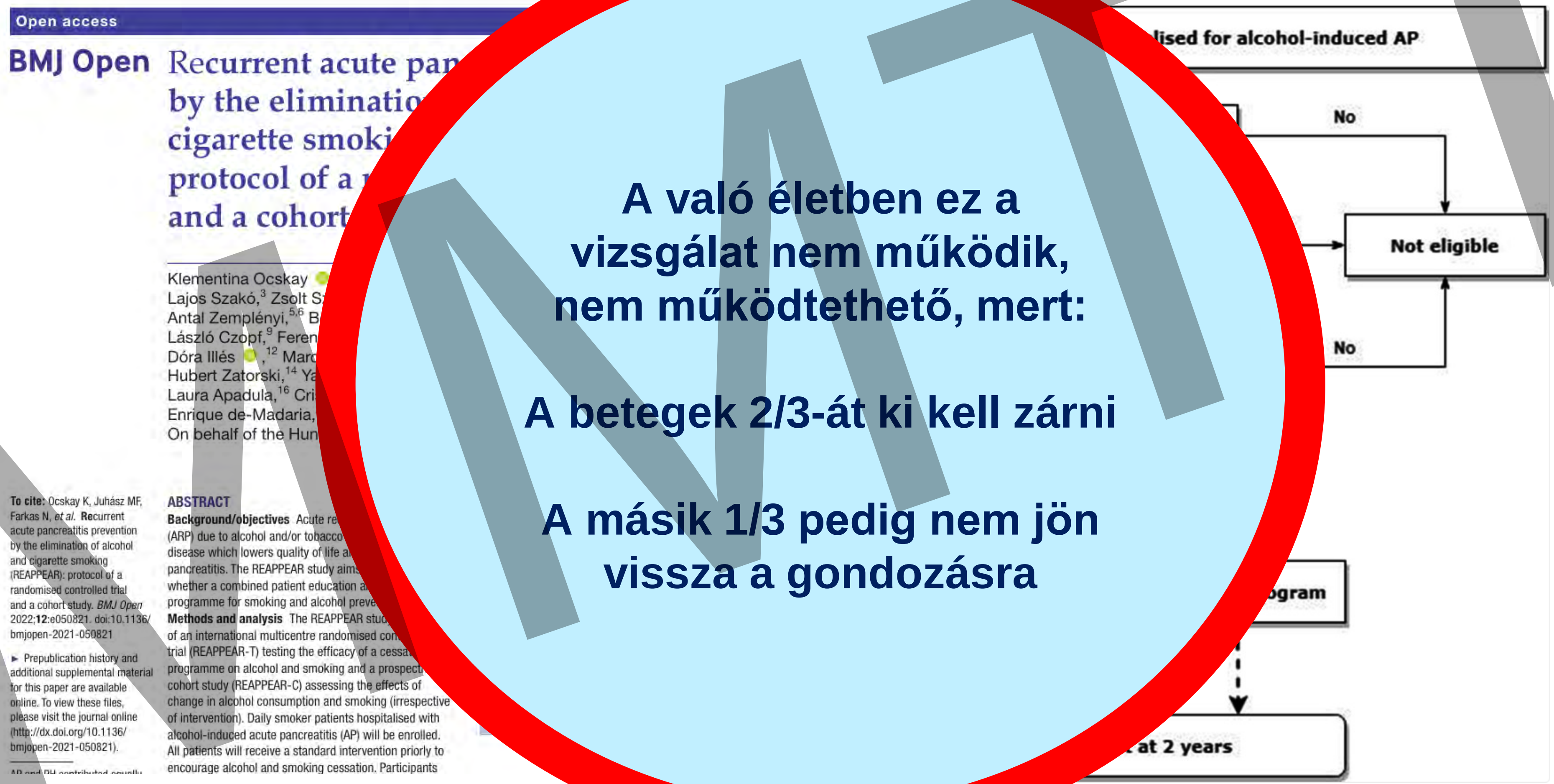
Study	Exposed DM	Exposed SAP	Control DM	Control MAP+MSAP	OR	95%-CI	Weight
Ho et al., 2015	38	765	580	11519	0.99	[0.70; 1.38]	12.5%
Cho et al., 2020	68	1007	490	8464	1.18	[0.91; 1.53]	13.1%
Castoldi et al., 2013	3	73	19	558	1.22	[0.35; 4.21]	5.0%
Symersky et al., 2006	5	12	7	22	1.53	[0.36; 6.57]	4.0%
Takeyama, 2009	50	311	43	403	1.60	[1.04; 2.48]	11.5%
Robertson et al., 2023	15	99	23	238	1.67	[0.83; 3.35]	8.9%
Firkins et al., 2021	662	7252	1848	35566	1.83	[1.67; 2.01]	14.1%
Lv et al., 2022	13	119	98	1685	1.99	[1.08; 3.66]	9.8%
Man et al., 2022	2	43	6	265	2.11	[0.41; 10.79]	3.4%
Miko et al., 2022b	3	10	25	168	2.45	[0.59; 10.12]	4.1%
Vujasinovic et al., 2014	3	7	3	14	2.75	[0.38; 19.67]	2.5%
Koziel et al., 2017	16	86	2	47	5.14	[1.13; 23.44]	3.8%
Ma et al., 2019	11	61	11	555	10.88	[4.49; 26.35]	7.3%
Random effect	**889**	**9845**	**3155**	**59504**	**1.86**	**[1.27; 2.73]**	**100.0%**
Prediction interval						**[0.63; 5.54]**	

$I^2 = 70\%$ [47%; 83%] , $\tau = 0.46$



Zahariev O Hegyi P Risk factors for diabetes mellitus after acute pancreatitis: a systematic review and meta-analysis. **Front. Med.** 2024

A rekurrens és krónikus pancreatitis kezelésének legnagyobb nehézsége



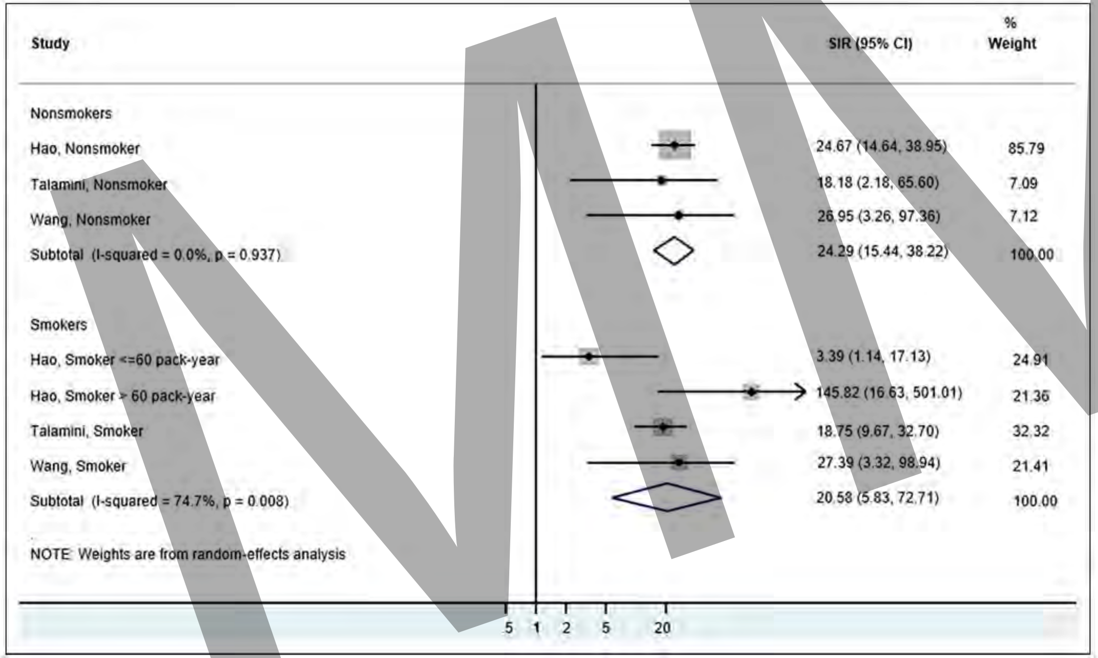
A való életben ez a vizsgálat nem működik, nem működtethető, mert:

A betegek 2/3-át ki kell zárni

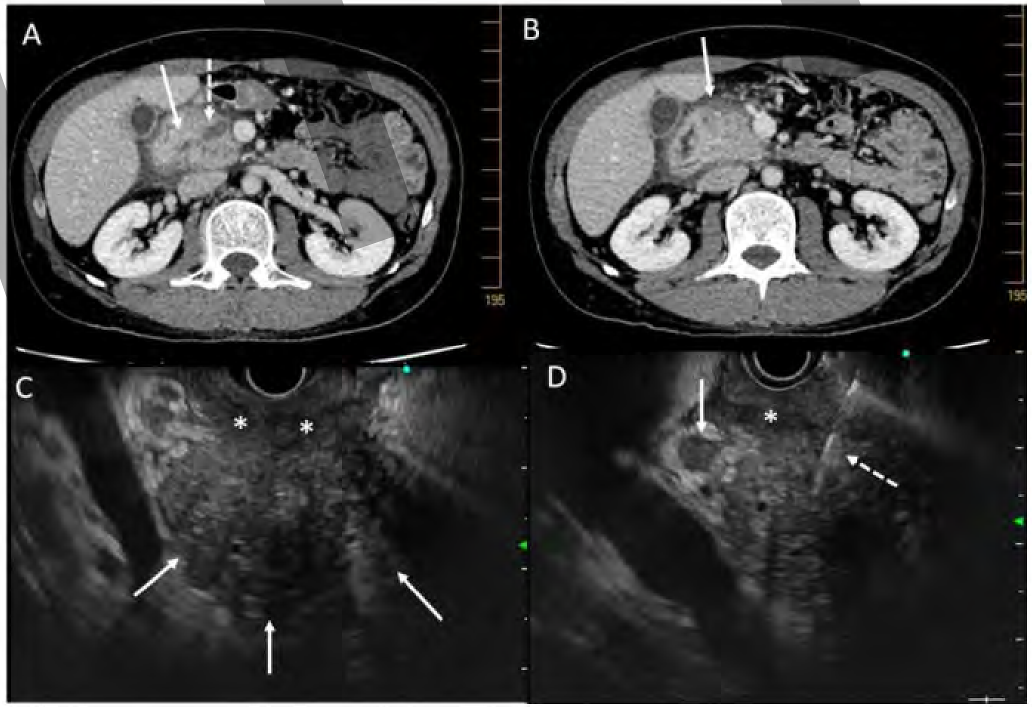
A másik 1/3 pedig nem jön vissza a gondozásra

Malignus transzformáció - Akár 20-szoros pancreas adenocarcinoma rizikó.

Nem csak szövődmény, hanem differenciál diagnosztikai kérdés is!



Gandhi et al.



Dugic et al.

Kezelés

🚭 Életmód

– Alkohol- és dohányzási tilalom (abszolút!)

Cessation of alcohol, and possibly smoking, improves pain in CP. **(GRADE 1B, moderate agreement)**

🍽️ Táplálásterápia

– Pancreasenzim-pótlás: **40–50 000 E főétkezéshez**

PERT is indicated for patients with CP and PEI in the presence of clinical symptoms or laboratory signs of malabsorption. An appropriate nutritional evaluation is recommended to detect signs of malabsorption. **(GRADE 1A, strong agreement)**

A minimum lipase dose of 40,000–50,000 PhU is recommended with main meals, and half that dose with snacks. **(GRADE 1A, strong agreement)**

Kezelés

💢 **Fájdalomkezelés (lépcsőzetes):**

- NSAID → Opioid → *Celiac plexus* blokk

Endoszkópos / sebészi intervenció előtt mindig optimalizálni!

> Pain intensity and the pain pattern over time (constant vs intermittent pain) have been shown to reduce QoL in patients with CP. **(GRADE 1A, strong agreement)**

🩺 **Endoszkópos / sebészi beavatkozások:**

- Sztentelés, drenázs, reszekció – indikáció szerint

> Surgery is superior to endoscopy in terms of mid-term and long-term pain relief in patients with painful CP. **(GRADE 2B, agreement)**

Cél: Fájdalomkontroll, megfelelő tápláltsági állapot és életminőség fenntartása

KONKLÚZIÓK

- Ismétlődő pancreatitisek esetén gondoljunk a krónikus pancreatitis kialakulásának fokozott kockázatára.
- Keressük az összes megszüntethető okot.
- A hosszú távú gondozás során a PEI és DM rendszeres vizsgálata szükséges. Jó általános állapotú CP beteg esetén is szükséges a rendszeres vizsgálat.
- A rák kockázatáról se feledkezzünk el!
- Mind a kezelése, mind az utánkövetés multidiszciplináris feladat.
- **TÁPLÁLTSÁGi, PSZICHOLÓGIAI ÉS TÁRSADALMI ÁLLAPOT!!!**