

Autoimmune pancreatitis: a comprehensive review

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ABSTRACT

Autoimmune pancreatitis (AIP) is a form of chronic pancreatitis characterized by immune-mediated inflammation of the pancreas. It is a rare disease with a prevalence of approximately 1 in 10,000. The clinical presentation of AIP is heterogeneous, ranging from isolated pancreatic enlargement to systemic manifestations. The diagnosis of AIP is based on clinical, laboratory, and imaging findings. The treatment of AIP is primarily with corticosteroids, which can induce remission in most cases. However, the long-term prognosis of AIP remains unclear. This review aims to provide a comprehensive overview of the current knowledge on AIP, including its pathogenesis, clinical features, diagnosis, and treatment.

1. Introduction

Autoimmune pancreatitis (AIP) is a type of chronic pancreatitis characterized by immune-mediated inflammation of the pancreas. It is a rare disease with a prevalence of approximately 1 in 10,000. The clinical presentation of AIP is heterogeneous, ranging from isolated pancreatic enlargement to systemic manifestations. The diagnosis of AIP is based on clinical, laboratory, and imaging findings. The treatment of AIP is primarily with corticosteroids, which can induce remission in most cases. However, the long-term prognosis of AIP remains unclear. This review aims to provide a comprehensive overview of the current knowledge on AIP, including its pathogenesis, clinical features, diagnosis, and treatment.

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1.1. Autoimmune pancreatitis (AIP) is a type of chronic pancreatitis characterized by immune-mediated inflammation of the pancreas. It is a rare disease with a prevalence of approximately 1 in 10,000. The clinical presentation of AIP is heterogeneous, ranging from isolated pancreatic enlargement to systemic manifestations. The diagnosis of AIP is based on clinical, laboratory, and imaging findings. The treatment of AIP is primarily with corticosteroids, which can induce remission in most cases. However, the long-term prognosis of AIP remains unclear. This review aims to provide a comprehensive overview of the current knowledge on AIP, including its pathogenesis, clinical features, diagnosis, and treatment.

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Abbreviations		IDCP Idiopathic chronic pancreatitis	
AIP	Autoimmune pancreatitis	IL	Interleukin
CD	Crohn's disease	LPSP Lymphoplasmacytic pancreatitis	
CT	Computed tomography	LT Lymphotoxin	
DM	Diabetes mellitus	MR Magneto resonance	
ERCP	Endoscopic retrograde cholangiopancreatography	MRCP Magneto resonance cholangiopancreatography	
EUS	Endoscopic ultrasound	NOsP Nodular regenerative hyperplasia	
FNA	Fine needle aspiration	OOI Other gastrointestinal involvement	
FNB	Fine needle biopsy	PD-1 Programme 1 - death	
GEL	Granulocyte elastase	PD-L1 Programme 1 - death - ligand	
HLA	Human leukocyte antigen	PEI Pancreatic exocrine insufficiency	
HPF	High-power field	PET Positron emission tomography	
IBD	Inflammatory bowel disease	PSC Primary sclerosing cholangitis	
ICDC	International consensus criteria	TNE - Tumour necrosis factor	
		UC Ulcerative colitis	

(PSC) 10% of patients with pancreatitis [1, 2]. The major risk factor for development of pancreatitis is alcohol consumption, followed by smoking. In the absence of these factors, the diagnosis of pancreatitis is often challenging. The clinical presentation of pancreatitis is often non-specific, with abdominal pain and elevated serum amylase and lipase levels. The histological findings of pancreatitis are often non-specific, with inflammation and ductal changes. The diagnosis of pancreatitis is often made by exclusion, with the use of imaging studies and laboratory tests. The treatment of pancreatitis is often supportive, with pain management and nutritional support. The prognosis of pancreatitis is often poor, with a high risk of complications and death. The pathogenesis of pancreatitis is often unclear, with a complex interplay of genetic, environmental, and immunological factors. The major risk factors for pancreatitis are alcohol consumption and smoking. The clinical presentation of pancreatitis is often non-specific, with abdominal pain and elevated serum amylase and lipase levels. The histological findings of pancreatitis are often non-specific, with inflammation and ductal changes. The diagnosis of pancreatitis is often made by exclusion, with the use of imaging studies and laboratory tests. The treatment of pancreatitis is often supportive, with pain management and nutritional support. The prognosis of pancreatitis is often poor, with a high risk of complications and death. The pathogenesis of pancreatitis is often unclear, with a complex interplay of genetic, environmental, and immunological factors.

Clinical and histological features of pancreatitis are often non-specific, with abdominal pain and elevated serum amylase and lipase levels. The histological findings of pancreatitis are often non-specific, with inflammation and ductal changes. The diagnosis of pancreatitis is often made by exclusion, with the use of imaging studies and laboratory tests. The treatment of pancreatitis is often supportive, with pain management and nutritional support. The prognosis of pancreatitis is often poor, with a high risk of complications and death. The pathogenesis of pancreatitis is often unclear, with a complex interplay of genetic, environmental, and immunological factors. The major risk factors for pancreatitis are alcohol consumption and smoking. The clinical presentation of pancreatitis is often non-specific, with abdominal pain and elevated serum amylase and lipase levels. The histological findings of pancreatitis are often non-specific, with inflammation and ductal changes. The diagnosis of pancreatitis is often made by exclusion, with the use of imaging studies and laboratory tests. The treatment of pancreatitis is often supportive, with pain management and nutritional support. The prognosis of pancreatitis is often poor, with a high risk of complications and death. The pathogenesis of pancreatitis is often unclear, with a complex interplay of genetic, environmental, and immunological factors.

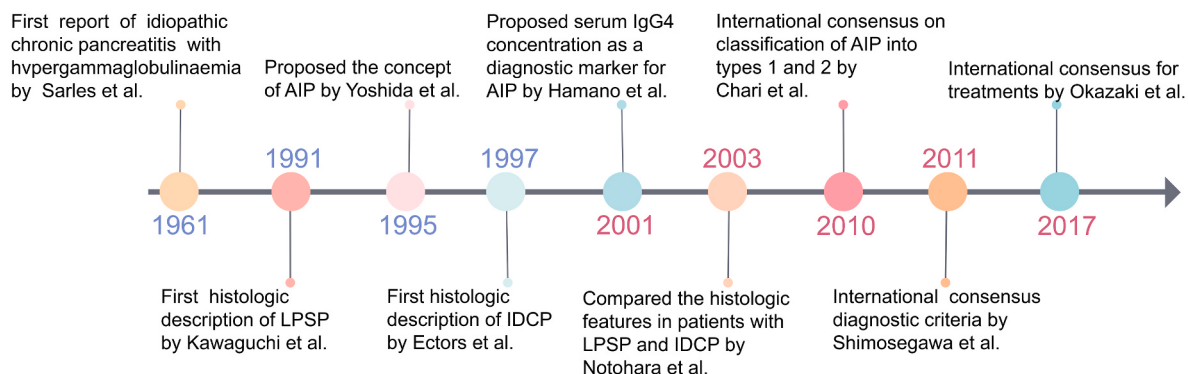


Fig. Major milestones in the development of autoimmune pancreatitis (AIP) from 1961 to 2017. The timeline shows the progression of research and clinical practice in the field of AIP, from its initial description to the establishment of international consensus criteria and treatment guidelines.

frequency [23, 24]. Importantly, the prevalence of G4 - positive cells was significantly higher in the pancreas of patients with type 1 diabetes mellitus (T1DM) compared to healthy controls (HC) [25].

The histological findings in the pancreas of patients with T1DM are characterized by insulitis, which is an inflammatory process that leads to the destruction of the islets of Langerhans. This process is characterized by the infiltration of the islets by lymphocytes, leading to the destruction of the islet cells [26].

(Table 1) The prevalence of insulitis in the pancreas of patients with T1DM is 100% [27].

However, the prevalence of insulitis in the pancreas of patients with type 2 diabetes mellitus (T2DM) is lower, ranging from 10% to 50% [28]. This is due to the fact that the inflammatory process in T2DM is less severe than in T1DM. In T2DM, the inflammatory process is characterized by the infiltration of the islets by macrophages and T-lymphocytes, leading to the destruction of the islet cells [29].

3. Demographic characteristics - 2

Overall, the prevalence of autoimmune pancreatitis (AIP) is 0.5% [30]. The prevalence of AIP is higher in males than in females [31]. The prevalence of AIP is higher in the elderly than in the young [32]. The prevalence of AIP is higher in the Japanese than in the non-Japanese [33].

4. Clinical features - 2

4.1. Acute pancreatitis

Clinical features of AIP include abdominal pain, jaundice, and elevated serum amylase and lipase levels [34]. The prevalence of AIP is 0.5% [35]. The prevalence of AIP is higher in males than in females [36]. The prevalence of AIP is higher in the elderly than in the young [37]. The prevalence of AIP is higher in the Japanese than in the non-Japanese [38].

3. Epidemiological characteristics - 2

3.1. Epidemiological characteristics - 2

Due to the high prevalence of AIP in the Japanese population, it is considered an endemic disease in Japan [39]. The prevalence of AIP is 0.5% [40]. The prevalence of AIP is higher in males than in females [41]. The prevalence of AIP is higher in the elderly than in the young [42]. The prevalence of AIP is higher in the Japanese than in the non-Japanese [43].

Table

A summary of the prevalence of AIP in different countries.

Year	Authors	Country	No. Total	No. Definitive	No. Probable	AIP-Prevalence %	Median / range (years)	Males	Acute pancreatitis	Jaundice	Relapse	Ref.
2003	Notomura et al.	Japan	13	13	0	37.1%	4.8	38.5%	NS	30.8%	0%	15.4% [4]
2004	Zamboni et al.	Italy	24	24	0	45.3%	4.0	57%	NS	NS	0%	29.2% [5]
2010	Sakai et al.	USA	19	19	0	19.6%	4.8	73.7%	31.6%	NS	0%	16% [1]
2011	Kamada et al.	Japan	64	64	0	23.9%	4.4	73%	34%	47%	5%	17.2% [3]
2011	Mayer et al.	France	16	1	15	36%	2.7	37.5%	50%	12.5%	25%	31.3% [3]
2011	Deshpande et al.	USA	18	16	2	62.1%	5.2	55.6%	NS	17%	16.7%	11.1% [2]
2012	Detlefsen et al.	Denmark	51	51	0	44.7%	4.4	54.9%	NS	56%	15.4%	25.5% [2]
2012	Song et al.	Korea	15	15	0	28.8%	3.4	73.3%	40%	33.3%	0%	33.3% [2]
2013	Han et al.	China	18	18	NS	8.1%	3.9	55%	NS	NS	9%	NS [9]
2013	Ikegawa et al.	Italy	17	5	12	22.4%	3.4	47%	47%	18%	6%	82% [3]
2015	Buie et al.	Netherlands	3	3	8	10.3%	4.8	64%	NS	NS	27%	36% [3]
2016	Han et al.	USA	43	31	12	24.6%	3.0	53.5%	58.1%	30.2%	10.6%	44.2% [3]
2016	Rasch et al.	Germany	20	NS	NS	37.7%	3.2	45.5%	60%	5%	15%	15% [3]
2017	Kue et al.	Japan / Korea	9	9	4	41.9%	3.8	69.2%	NS	15.4%	0%	38.5% [3]
2019	Oh et al.	Korea	27	15	12	12.3%	2.9	70.4%	63%	3.7%	8%	44.4% [4]
2019	Gupta et al.	USA	35	35	0	NS	5.0	45.5%	NS	17%	NS	20% [2]
2020	Barre et al.	Italy	48	48	0	31.2%	4.8	54.2%	25%	25%	6.25%	27.1% [4]
2021	Pattabati et al.	Australia	10	10	0	43.5%	4.9	60%	10%	40%	10%	40% [4]
2022	Nikolaou et al.	Italy / Sweden	35	22	13	NS	4.1	48.6%	5.7%	11.4%	24.2%	82.8% [2]

Abbreviations: AIP = Autoimmune Pancreatitis; NS = Not Significant; Definitive = Definitive diagnosis; Probable = Probable diagnosis; Ref. = Reference.

wi talp ancr m a s s é f é m d a l g w i n t a l p t r e v a b e r t w e e n t r a p a m a r e a w i t t h g e o m m d r i d e w t i t a l p r o x i m a l 27% n 80% [2 33 7 , 3 9] T h e i d e a r i a t i h e s s t e u d n i a g e s d i l a t a t u m d e d e p r e v a t e m p a t r e d P (T 1 b 1) v e s . c a u d o y d a r i f o a u c s t s o u r c e s m a s l a m p l i e a t i s e n t r a c e d , u p t o 50% a J a p a m e s t e i s u a v i e A r l P [1 1] H o w e v e l r l o h o s p g i t a d e e r a p l r l e , v a d i p l i i m i g o m a t P i - r o r p e r o n e e a l l [5 4] d e s c r a p l a d v e i n A h l P a r 2 d e h e f t p a d u i c c a r r o w i n g t o u n d e s g o g r i e s a d u i e c h i a g n o s t i f i c u l a c c o l c o n c u w r i e u m p s t r d e i a m a r i d n o r m a o l m m d r i d e c t , a n d e r m m r k e (3 3) s u g g e a h a i n t g e r m a e t h a e u i n s d n e r b y i l i n g n v o l v e m e n t S u c c h a s n e a s y e m i s d i a g n o s i s P e s i p o r a d e p o h r a t v s e u - g g e s p o e s e b i f e a - p a i n n c v r o e l a v t e i m e n t P D 2 t i l e e f a s l e n [5 4] d e s c r a i p b a e t d i e i n t A h l P a d i a l a d w e h n p r e s e n t e d h i s t o l o g i c i t G t E a l i s t a y d i t d y m p h o p l a s m a t y t a t i o

4 . 2 B D

A l P h 2 a s t r a s t r a s g o c w a i t t l i B D n p a t i w i n t l B D n d c o n c o m A t l a 7 0 % r A e l P [4 24 8] I n o n t t a p e r e v a l e n b e o s a n s b , b l i t e p l a t e i v l e r t a i d s l i t p i s o m r , i a s i s / p s o o f l B D p a t i v e i n A h l P v - 2 r i e s w e e h a n 3 % (T a b 1) A a r t h r i o p t i l y s m , y c a s n i e t a i s y n , a s u y d r w e m e r e p o r [2 3] d r e c e y s t e m e a t i r e y p o a p t e d p e r d e v a d d B D p t 50% H o w e v e r h a s s o c i a s t o i o m u i n v o l v e m e n t e s e a r e [2 4] B e c a A l s R e i - d a w e a k s s o c w a t l B D n h p e r e v a o b e n d e n t i i r f e d s e e s i T o m e s . r e e o t e a - p a i n n c v r o e l a v t e i m e n t I B D n a l c l a s w e i s t A h l P s 0 . 5 % [4 7] C o n c o m l B D p t e d o m A l P h 2 s o l i e e e n s t a b l i e s s h p e d i t . l e o r s e e l a t i b e n s w h e i p n n a n t i l l y e r c a d l i (v l e C a s n , d e s s e q u e d n d i d y s e (a C s d e) . A l P a r 2 d C w h i t h e q u e n t e d w i i P h 6 c p - e x i o s A t l e r n - c 2 T h e e p o d C e C d t r i a n t h e s w e e 5 [2 1] a n d 0 [3 1] o a l l a n d S C a s a r b e g r e p o [2 3] e d r e p o r t B D a s a e r b e C [4 4] I B D p p e a r r i s o o r , i m u l t w n i e b u s

o a f t t h e d e i a g m o A s l i P s - 2 5 % 6 7 % 1 , 8 % 3 % a , n 2 1 % 5 % f 4 . P e d i a t P i c p a t i e s s p e c [1 14 4 6 7 4] A w o r k f o l p B D p a t i v e i n t l s s u s p e A c t R e o d a n o p p o s e a e i s i m p o r w a n t i d i a g C h i l d r i e A h l P r a e d i s t i p o p u l a h a h a s e p n o o r l y n o s t i g n i f i c a e c m o s t l B D a s a e s e l i n i m a l w l y h e l u c i d a e e d r s a r a i t d y h l e o w v a i l a b t i l i s i s t u y e c i m e n s n e a r m h y e - h a e t f a v t h e i m o e A l B i a g n [6 34 19] s b u t h e [1 9] l a l i m i n t u e m d e f e r t h n e e , d i a g n i e s 21 3 y e a w r i s t h i n f a m a d t i s o t n r i b i s a d u i r o i n f o v h m i . U e w a s e p o r t b e d e i t h e m a p l r e d o m i n a t i n g a l l p e r e d o m i t h h a s a e n e x h i a b i p t r o x i e n a d u t e r l e y q u e n f e i c e i s a f t - c o r d e - d e n s y m p t a m a s c u a t e d o m i n a p l a / i l j n a , d n d w i e c i e g l , h o t n s a u s i v e v o l v e m e n t e t u [4 4] o t h s e t r u d i n e d s i c e a x t t e e d n s i s v e a / v o m f i a t t i i n g u e b , n o r m a o l t h s p r e v a l e a p p e - o x i [3 7] l e f t - s i d e d - i p r i v e d l o r i e n a b t o t [4 8] M o s t a s e s m a t e d 9 % o l r g C 4 r o p o s u i p t 5 % f i o t r g G 4 - p o s a s i n a e i c w i t h C D and A l P e x h i b a t h i g h e f r r e q u e n c y i n f l t i a t h e o s (s l e o s / H P a F n) 0 , 0 % 0 % o G R E L B e a n d n o n - s t r i c t u r i n g / a n t o t a - l p o s r e e r e q a d e n e g i a n d M m a y a l s o c a u f r e q u e n c y 0 % 20 % w i t a h e l a r p a s e d d i s e a b e g f e r e q u e n c y e c a m d y o w e r e q u e n c y a p p r o x i m a t e 1 5 2 3 3 T h e s e a t u r r e e s n i n i o s A c l e P n - t 2 . m e s a l a m i n e / i m m u n e o g s i n u p e r a t e o s t h o e r r o v i n s p e a r M o s o f t h e a s e a s e r i e a g n a s e d i n i p t r i o l e a b o r i e s , s p e c t e d b l e o C D w i t h a l u p 2 14 9] A p p r o x i m a e e f q u a p a t h i e n a t s P w a l a m e i n o a r d e y a g n o s i s A h l P o d t h e r s w i e s e i f e d w i t h I B D w a e x t r a - i n t i e n s v o i l n v a e i m e t c t l u d i (n G 5 A) I P i - d l i n p i r c a a c l [5 3 3 4] .

r h e u m a t o l o g i c f p r d e d o y n p i h a h a l n a m l d o e g r i m a A l P - N e s p r e a e m r t d i n t o i y o e s t p e c i t h a e d c o u f o r t s t o l o n g i n d i f e s [4 8] C h a s w e i s t o n c o m l i B a m a t l P m 2 y 10 % 16 % a l c l a s a e n d h a c d s i n f i e c a a t l a A d P a d A l P - 2 h a v d e i s t f i e n a c t t u r e a s w e i s t e h i t a e o b e t h e e s a l r e s (e s p e c t h e a d l p e u r r) i f n o g l l o a s - u l p s d A l P - n G S i e n t s c o n f i d w i t h i n s g e m s e t u d h i a e v s e e p o r t h a e d n c o m l B D n (20 %) s e c l a s a s A l P e d e c a u s e d e v e l o p m e n t [4 4 5 8 9] . i m p o n s a p p a r e i s t a d i f f e l i e e a c o s u e f A l P (- e x c e p t o A h l P a r 2 A l P c a l e x h i t b i e t s t o h l a o g l i n c a e a k o u r l e s f o t r h a s s o c w a t a m i o m c r e a i s s e d M [2 1] a n d h f e r e q u e n c y t h e y r p e o e r x a m p l i e y h - g g e d e p o s a s i n i a r f i l c r a t i o o f c o l e c t w e n g m p a r a a m b o l n e g a t i v e i n A h l P e d 2 u g - i n d u c e d e n t i i A f l e P d i o n p a t i t e m u m b e r f g G 4 - p o s a s i n a e p a n c r e a n t o b n s p a n c [4 4] a a t s i y t s i t s e m a v i d e e m e n c e w a s 50 / H P 2 4] l e a d d i G E d a s r a e l p o e s i e A n l P [2 5 2 9] T h e s e d i n g i s t h e o s s i d h a n o i v t e y r l a d i p s i e s a g s b e r e c u r a e d o e e c d o m p y a t r e a l t i v e n e l s t a e o [4 4] . t y p l e n t h e n t e l e t e n , a d l i a g n i o s s a i s s e d a c o m b i n a t i o n T h e a t s t e u [4 4] i n c l a d e o o A l P - 2 - p r e p a r a t i o n i n a c h t i n s i e a d l h o i g s i t c o a r d u e i n c o , g r a p l a t B E a e n d M a r e (n e a 80 %) h u b s e i n e y f l e e c t d n c o m A l P o m t B D e m a i n i s d e n t i i n f p e 0 % n 20 % p a t i v e i n A h l P r e s p e c t i v e l y t d o e x a m i s e r d i l t a h d e l y s c r e p e r t w e e s s t e u d n i a y s d i a g n o o s i s i f r o g l l o [4 4 4 1] p T h e a t a e s s e i m i t l a l r P - 1 b e a u d o y d a r i f o a u c s t s o u r c e s m a n u l m b e r u b j p a t s e n w t i t r e s p t e d e a n d l o w e h A n l P w l t r e s p t e d M [4 33 4] . s o u r a n d l p s p g i t a d e o n t r a d i s i g h p e a v a d d B D T h e e l a t i o w e a l y d M i A l P m 2 y e p a r e x p l a b i y b e d A l P t 2 p r e v a b A n l P p r e d o m A n l P n i 2 l B y d a s o w s d u c t - c e d i n s t i f i c o f u i t n i f o a m m a t t h a t a s l e s n a r k e d d i s r u p t h i e s n l e a d d i t a s m a s u l b e A l P p a t i n e a n y s

I n t e r e s a t i u p t h y c r e a n t d i B D s e l o s c o l r y r e l a t e d a s y m p t o (m l a 4 2 6 5 0 %) q o m e w h o a r i e d e n t d i u f r e i d n g A l P C o m p a t A d P p 2 t i w i n t b a o u p t a n c r e A t R t 2 i s m a g w o g k a d p t h e d i a g n o o f s B i [5 14 3] .

p a t i w i n t a b c u p t a n c r e a p t i r i e s e n h a v a h o i n g l p e r e - v a l e n o c t e o n c u t i B [3 7] t a n a l c u p t a n c r e f a r t e i q u e s n d u l y s 5 . A p u t a m i o v l e c m e a h a n u i s d n e r l A y l i P n - g 2 I B p a t i e d i a g n o s s e u l t a w e d o h r s i l y t h e r e i a g n o o f s i s A l P [2 2] .

4 . 3 E x t r a - p a n c r e a t o i A d l i P t - i e s

I n o n t r a d b p r e s e n t u e l t e p t e a - p a i n n c v r o e l a v t e i m e n t M i A l P a b d h a s i m i b l u a t m s i g n i f e a n d i t s i t s (n a m e 0 y i) A l P A 1 P i - e g a r a d a e p d a n c r e a s - d r e s s t A r l i P c t d e r d o l s t a u r y i i e l s a r g e o r c a r r t e e s d e t o d e r w i f y t h e r e a s P e a t i w i n t A b l P e 2 m a n i f e s t i l i i a n v o l v e m e n d n t t o b a i c a c c o u s a f t a i c v d e f P B 2 c a A l s R e i - d h a r a c b e y r i z e o b s t r u j a i n v a l e a d w e r e q u e m a t r h o v s i e A h l P T h i s a m a r k i e r f l t o h t e u o t n r o p h i n f a m n e c h o l t h s i e m m u " b i l i i a n v o l v e m e n t b e d d i e c b m p r e s e s s i w h r o m g n o l o n g e i c h a n t i s a n d e r t h i e e s c r u i c m e m o t a x d s , p a n c r b e a s d w e l f a n t h e a t h l e g G 4 - p o s a s i n i a r f i l c i n f l t o a t h i e o e h l a s e e e n x a m i M e d s u y e a m [2 7] r e t r a n i o o t r e A l P i t h e n t e a m R C B c a t y p i o r a l v e y l p s o r t t e d p a t i w i n t A b l P e 2 h i a b i i t g m e e u t r o p m b e r

T h r o o l e c m u e l a h r a n u i s d n e r A y P i n g a r g u e n l k n o b w n t , p r e s u m i a n b l o y e n e s r o n f n a e n t t i a n r s u , n o d o g i t o r b a n c e a n d g e n e p t r i e c d i s p m a i e d [5 4] r e p o r t h a d i g h e r s m o k i n g i e x s s o c w i t h l o d e a n c r r e a t p l e o d a r g a d e s

concurriertnnc reas sse acts s v o to f g r a n u l o c y t a k e n o g e w h e y p o t h e s i s w z h e e h p e r o t e m e d o h a e
chemot p a c o t i e (i O X - C 2 L a - 16) u n t h e n t e r l p o n d a e a r t i i s a n s t e r e a c h a e g e n e t p r a e d l i s p n o d s i e v d a d a s a t i v e
ductt h s p r a t i v e h A l s P a r l d l c o l d h l r i o m a i n c c r e a r t d i t f a c b o r o m b i n a p r i o o v n a s l o e r r i a n m t u r e a c t w i o t n h s i n
c a t i t h g n t e u t r i d i n f i l t i m a i t g i l b o r d r i v b e y g r a n u l o c y t a n e c r e a s s l o e a s d , t i o i g c r e a x s p e r d e s c i y o t n o k i n e s / c
chemot p a r c o t i e t i p n a - 2 t i v e h A l s P K 2 e . a l [3 9] s h o w e t h d e m o k i n t h e s e n a b n l e u t r o p h i r l u i a m e n f l t r i a n t h e n
i n t e r l (d l l) C 2 C t 8] s s e a c t i s v a i t n l e y t e d t u e d c p a n c r e a c a n s d o r m a d t i b a r a c G e r l o s t h e m m u n e
t a l / d u e p u t l a e a i n d u m f l t m a e t u i t n g p h i l s / i l y m p o m p o r t e e s t s y m p h o p y l t a e s m a l T l s e l p e r e l a 7 r s d
A l P - a 2 w e l a s t h e r y o p t i t h o v l i t c h m y p t i t i s a r a d s e c c e s s i s r e o s p h i s d i r s t r i o n d e c o t A l o P w - 2 i a n d i v n i e l a l
i n f l t i i a f a m g a c t e o l r i l y C s u g g e s t h a t g r e x p o r e s a n o s f r u s t . s t e d a i r e s e d e e d l u c i t h a n s e c h a n d i e s t t a i c l s
l l m a y b e a m e c h a n l i s t i k i c w a d e P a 2 U C l a g r e e m e o t h o t h e e , c a f u l s r e o i s s i n s t a h b i l s e t o f l e o a g t o A r l e P t 2 e e l l s
w i t t h f i s d i s e g r , u h w a a l s e d e v a t a p d t i w e i n t A h l P - 2 t h a t e n g a g d f d r o g e (n e e , p g a . s , c r s a e i c t e a l t l e s s) e r v e
[2 4] . I n t e r e s t o i t G h e l a y n , d l w e r d e t e d i t h e p e r - i t u f u r t i h e v r e s t i A g r a e t c i o m u [5 4] s u g g e s t a t u n c t i o n a
m o r a l i s s [1 0 3 5] . H o w e v i e r r , c r e a x s p e r d e s f l i l o - i n s t h e l K K / k B s i g n a l i p i a n g c r e a e i c t e a l t l e s d e v e l o p m e n t
p a n c r e a s s o f e l s P w 2 s o v e r i [2 6] d l o e s t a l [5 7] r e A l l A p u t a n o v e c m e l a t r a n i s s m u s i t f a 8 . e d

p o r t t e d h p e r e s e m i n a e r k i e r d f l t o f t h e d p e c r e - l 1 7 s d
n e u t r o i p h e i r l i s d a c a s v e l a s i n c r e a x s p e r d e s t h e n 6 . D i a g n o s A l P s 2
l l - 1 9 7 e A i e A l P e - 2 m p a t r o d P w h j c h d i d a h e y s t o k i n e
l l - 1 i 7 s A n v o l i v n e d u t r o p h i r l u i B r e a t n s e u t r o p h i D . i a g n o s i t t o e A r l i P a - 2
r e c r u i t m e g u t l a y n e u t h e r o l u s m o a t t i c e l g a m i t s ,
N - f o r m y p e a p t e o b e n s p , l e a e a p h y l a t n o d h i e m s o k i n e s) v e t h y e a t b e h r a e v b e e m n a n p u b l i d s i h a e g n o s i t i e r i a
t h a u n c v i i a n t e r w d G p o r o t e i n r e e u e p e l t x p d r s e s s e o A r l B u a l t h J e a p a n k e o s r e a s j a n a M i a a y i o H l l s O e r n t d) ,
o n t h o e s d u r f [5 6] e s u t s t e d a i r e s e d e d d e t e r w n h i e t e h e G e r m a n n i f y i n g - a u t o i m m u r i e [e 7] A m o n t g h a e s i e t i s
o t h e h r e m o a t t a a e l s a n v o l s v e u d d o i n t s a e c r u i t m e r n i t t h e u n a i v e a s a e p y e d f e o A r l i B w - 2 p e r o p d y s t e h d e
m e c h a n i s m s r b y h e n g f a m m a c t e o l r i l y A l P a 2 i b i m i t e d C D 4 h i c h l u e s i d e n c e - l o e v e r t l a s 1 7 e l l y g h - g r a d
S e l e e m l [8 9] r e p o r t h a d p e a t i v e h A l s P x h i b o i v t e e r a n d l e v 2 / l l o w - g a s w e l a l s t w d i a g n o s i s l e e t a i
e x p r e s s i o s l a y n e p h o (t o k) i a n d h e v e r e x p o r e s i p h e f n a n t i v e b a b P e a s e n i m a g i l B 9 , t a h u s t o l o g i
p r o t w a i s n b s e r i v i e n d l t f g r p h g a y d e i s o a w l i s a h f n d i a m u s h e r a p r e u s t i o p [7] s t e h s a e r e o v e d r i t f f e r e n c e
d i s t r i a b u d m i o u n d m p a r b a e t l w e A e P a 1 A l P O 2 e r r e g a r d l i n g p i r o a f l a r e d i s e a s e o n e c a h n e t w p e a n
e x p r e s s i o p n i a c i o a i l n s i c i e n d u a e d o i m m u n t i h t y i e v n i t s t e f n i a t n i p r o b a b P e l 2 m o n s t h r i a g t h i g i e n c y
v a r i f o e a s t a A e d v h i o l o c u m e l i g n t h e r e s e o f l y e m o f h p e r o p o e s e d [e 7] A d i a g n o s i t d i o A r l B w - 2 t h h e
p h o c y t h e i s i l , e h i b d i t h e r i e r e e p t p o r r e c e p s t i o g n a l i l C D C s i l l u s t r a i t g e . T h e C D C r e a i n u l s y e d o a d u l t s ;
a b r o g a t h e e d a t w a e b n d i c a l t a i t h i g l r T e c e p t g m a l w h e t h e C D C d C r a p p l i c a d h i e l d e m a u n d e t e r m i n e
i s e s s e n i n t i h a e c r u i d t h y m p h o d y t t h e s a n c r a e n a d s R e c e n a t s l e y r o f e s c o m m e n d a t r i c h i n a s g n a o n s h i a n a - g e
i n d u a i u n g i m m i u n o t A l y P a 2 A l P A 1 r e c e r t u [6 4] m e n o t p e d i a t l t h e w e r l e a r g i e n l f y e f r e a d d u l t a t h a v e
s h o w e t a v h e n d u b e t d h 2 y t o k (i e n . e g l a a d l - 1 3) p e p r u b l i [5 5] e d
h u m a p n a n c r e a g o f b r o b e a e l e o t t a x (i O x - L 3 2 v h) i , c h
f a c i l e i o t s a i t n e o s p h e i m o i t a i x v i e s h . a o s i n o p h i l i i s t 6 o m . i a g n o x s a t m i c n a t i o n s / t e s t s
o b s e r v a e d P [1 2 2 9] f u t s t e d s i h e o s b l e d i r e a t l e d - e r
m i n i w n g e t h e t a x i a n n a d e r e t h e m g k i a n l P - 2 .

A s d e s c r a i b e v e e , L i s p a n c r e a t a e h b i s t o l o g i
W h e o m p a t r o d t i w i n t p a n c r e a n c p e a r t , i w n t b h a l l i n f a e a k o u A r l e P A 2 t h o r u e g s h e s p e d i p m e n s h i d g h e r
A l P e 2 h i e b l i e t v a l e o d f s s e r u n d , 1 L - a 7 n , g r a n u l o c y t e s i t t d l v i s d t y l o f i s e a t c u o m p a t r o d o s p y c i t h e o p s y
c o l o n y - s t f i a n c (l a l t e i e n t h i c h l a s o e v a t t e d s u e r s e) m a t i m n s o s c o m m o r i a g n o s e d i t h e a r q u a i n e e i g i b l e
b u d e c r e l a s e e d t s m o e c r o a c a s o p h i a n f i r t i s s u o s o p s y c i t h e a n e e t l s e e q u i r o n h e i n s t t o e l v o a g l u c a t i o n
[6 1] A n o t h e w a l y s l e m o n s t t h a a t i e s N e e x p r e s s i o n d o s a d p i r a s 6 1 0 6 - g u n e d e e d a s p i r a f e n a n d
u n d e t e c t a n s c a s w e i s A h l P [3 2] H o w e v a e n r t , i a n n e i b i o r (5 7 1 8) s p e c t i h a l e a l t y c o m t r i d h e a g n o o A s l i P s - 2
b o d a e e f f e d t t h e e a t o n e h r [6 2] j n d i c a t a t h e i r b o t a d u a n s h i l [6 3 6 4] E U S - F W l A i , p h r o v i s p e s i
T N F p a t h w a y a e a c t i v i a n s d b s e p t a t i A n t t h o u g h n e i n s o r y t o l e o v a i l c a r t e i o i r a , d l y m d e s i g n a v i d a e s
v a r i o h e m o k i n e s a c y m p o k i n e s h e e d f a m m a r t e o r l y i g l a f e r t y [7 1] e l a d d i E U S n F l n A e i f d l f f e r e n t i a
a c t i o o A n l s P t 2 e e t a n i d e e l c p u a t a h r v a a y e a r g u e n l k y n o w n A l P a 2 A l P B u t s u a p l r o y s d e p o o d l e v 2 e r a t h b a n
P a n c r e a t i p a r l o g r a n d e a d h - l i (p a n d e a c t i i s i l t e y v l e e l v i d e f m o r e P [7 2 7 3] D u e t h e a r o A l y P m 2 s t
d e t e d t u e p d 0 % p a t i w i n A l s P a 2 h a r b l o i r g h - g r e d e t i h e a v e v a l u a t e d f e c t b v a e 2 h e - s g a n u e e d l e
s p e c i f w h i i t l y e , d o l e 2 m 3 n d i o x (y g a e n t h e a n d - L 1) f o c u s a t P A 1 t h o s u p g h a d p o n e i n s t i o h e e d f e c t i v e n
r e a c t i i d e i t t e y d h o e d A h l P a 2 U C p r o v i a d n i o n t h e e r h a o F N A v i a 2 2 - g a n u e e d h t e h d e i a g n o o A s l i P s t 2 p i s o c e d u r e
n i s t i i b e t w e b e t s w e d i s e [2 5] e n t e r e s h a e n g l o y f a e i s o a r f f e o p t i v o r e r [a 3 7 4] F N E c o b r i e o p i s s y u) p e r i o r
p r o g r a m m e 1 e - x p e r a e t 8 B d h e c e p P O r l c o l l a b o r A i p r o v i a d d i e n g h a t s e t o s p e c i c a n e h s e r e d e f y n i
r a t w e i s F l o x R B d r a n s a m i n t s u n e - i n s h i g h n i a t o y r o l v e d v e l a g n a s P [6 6 8 7 9] d e s p r i o t e g n i f e a p e n t i o r i t y
i n t h p a t h o g e n f a e s f m i c [6 3] . T h e s i g n i f e a t h e e a s y s t e r n e i v c i t e h w a i n c l u d e l 2 5 p a t i w i n t A h l P [7 2] .
P D - L 1 / a P D i - A l l P h 2 w e v i e n c l e a r a g l e n y e , d a a l s s o A l t e r n a t u l t e e s y m o e a x p l o l i a t p e a d r , o u s b o p a s o r u n d -
p l a y o l i h d e v e l o p a e f m 2 t a t i i n h g s e n e r s c o d i n g e r c u t a n l e t o r a s s o u n d o - m e u d h e d p e s y h i m a i x t i m u m
f o m E N a n B K H D a l r e o u n p a t i w i n A l s P t 2 i p e l a t i v e e l n y s i f t d m h e t y a g n o o A s l i P s a s t u d i y a t c l o p e d i e n t s
h i g h s e r u n v e e f s e l d e c e p i t a l r P s d e s e f r u r e t e h e a m i w i A h l P a 2 t , h e i a g n o s e d e c m e n a s c q u b y e l d e s v e o
n a t i o d t n g e n e s c o d t i h e g s e e p [4 4] d s a d d i t s i o m n e , p r o c e d u r t e s s u , s p e c i w e r o b t a b y e U S - F [N 3] .
h u m a l r e u k o a c n y t t i g h e l n A) l e e h l A , - D Q B l a n o z y g o s i t l n a g e x m i n a t e l h e r s t d l a g n o s t a i c f i A n l P s -
H L A - D R B 1 H L A 6 - , D Q B 1 a n o s a , c o n c o m i a t b a s n e t n o c f e 2 M R i s u p e r c o s r c a m h e e v a l u a p a o o r p e a n e r c h y m a
H L A - D R B 1 F l l h l a e v e p e r n e p o r t t b e e d s s o c w a t t h d e a n d u a t l t e r a [7 6 7 9] A s l t h o A u l g P h 2 s i m i r l a a d r i o l o g i
d e v e l o p a e d P [6 2] . m a n i f e s t a t P [2 0 5 3 9] s o m s e t u d i a e v s e e v e a i e d r

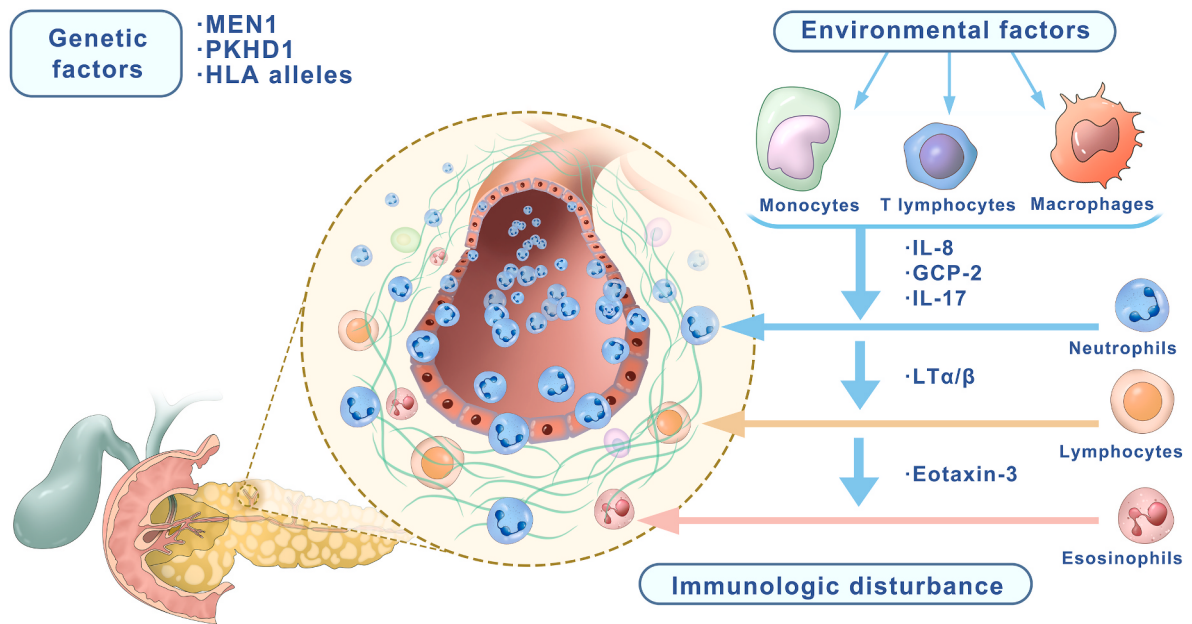


Fig. A putative mechanism in the AIP pathogenesis involves combination of genetic, environmental factors, and immune cell infiltration. The potent effect of these factors is a direct effect on the immune cells, leading to the release of cytokines (IL-8, GCP-2, IL-17, and LTα/β, and Eotaxin-3) that lead to the recruitment of neutrophils, lymphocytes, and eosinophils to the pancreas. The immune cells (neutrophils, lymphocytes, and eosinophils) release cytokines (IL-8, GCP-2, IL-17, and LTα/β, and Eotaxin-3) that lead to the recruitment of neutrophils, lymphocytes, and eosinophils to the pancreas. The immune cells (neutrophils, lymphocytes, and eosinophils) release cytokines (IL-8, GCP-2, IL-17, and LTα/β, and Eotaxin-3) that lead to the recruitment of neutrophils, lymphocytes, and eosinophils to the pancreas.

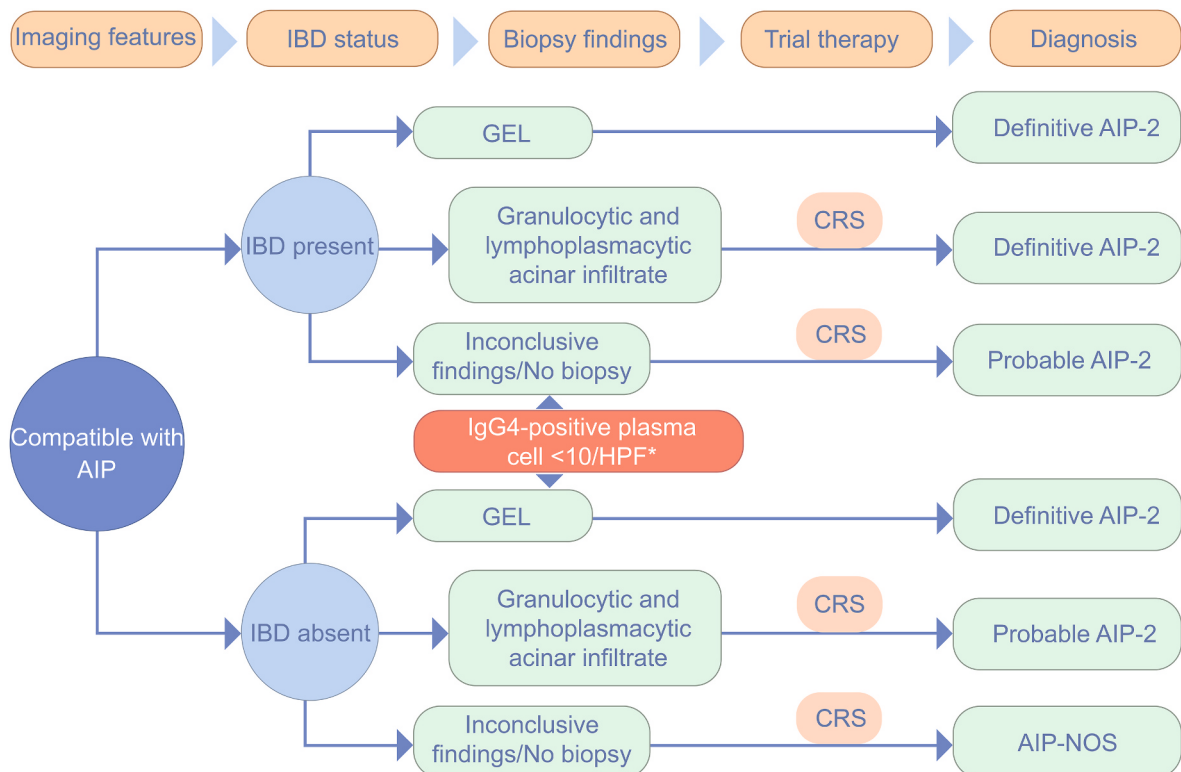


Fig. A diagnostic algorithm for AIP based on IBD status, biopsy findings, and CRS. The algorithm is based on the findings of the biopsy and the presence of CRS. The findings of the biopsy are categorized into 'GEL', 'Granulocytic and lymphoplasmacytic acinar infiltrate', and 'Inconclusive findings/No biopsy'. The presence of CRS leads to 'Definitive AIP-2' or 'Probable AIP-2'. The absence of CRS leads to 'AIP-NOS'.

different special laboratory tests may be performed to confirm the diagnosis of AIP. The most common test is the serum IgG4 level. In addition, the serum IgG4 level is also used to differentiate AIP from other autoimmune diseases. The serum IgG4 level is also used to differentiate AIP from other autoimmune diseases. The serum IgG4 level is also used to differentiate AIP from other autoimmune diseases. The serum IgG4 level is also used to differentiate AIP from other autoimmune diseases.

pari teht iack a n d i n r o g e n e s c h e s p e r - e n h a n t h e m e a n t 2 e
l e s i o n a s o n t r a s t - s e c a n a m a n 2 . T h e a e e u r r e n o t l o g o m p a r b i e s t o w n A e R a n d A I P - 1 .
A I P s 2 e c m a r c k (8 r 3) S T H A I P s 1 e c s i e f r o m r k l e g r G i 4 s
e l e v a i t n a p p r o x i m a t e 1 0 % e f f p y a t i o n i t t A I P - (1 2 1 3 4) .
A c c o r d i t h e 9 4 - s e r o p o e n s o n t e v c i e s y e a r c i l l y l e
A I P d 2 a g n o s e i n n y e l o p e r o x e i r d a n s u e r t y a o p l a s
a n t i n e u c t y r t o o p h l a a h s m i i b o p t h i e s e i b a d a e l e s s e s e n
i p a t i v e i n U S C (5 4 7 7 8 4) a n t i - s m u s o c a l l m e t i b (7 d j) i e s
a n t i - t r a n s a l i d o (8 b j) a n d a n t i - a m y r l a s l e (8 d j) i e s
m a y b e p o t e n d t i a g l n o s a r k e f o s A I P - b 2 u , h e e f u r t h e
v a l i d a t i o n .

6 . 3 D i f f e r e n t i a l d i a g n o s i s

6 . 3 D 1 u g / s t o n a e n - d i d n i d o u p a e t u l t a e n c r e a t i t i s

P a t i e n t s D a y p r e s e n t a t h e u p t a e n c r e i a n t d i u b i e s d
m u l t i c a u s e u s c a l d r u g s o n i e m s m , u n e i g g o v e s a , n o
k n o v e r a u s e s i o p a n t h i r e (8 7 8 9) D s j u g s p e r e s u m a b
t h e o s c o m m o a u s a s t u d t h y a n c l b b o p a t i v e i n t h e s ,
5 1 w e r d e i a g n o s i s t a n t u p t a e n c r e a n t d i t u 2 3 (4 5) . 1 0 %
w e r d e u g - i n r d l u g y e l d i o p a n d l o b e y a m i n o s a l 1 8 y l a n c e a) ,
(2 5 . 1 0 %) A H I P 9 2 1 7 . 1 0 %) i n d i o p a e d t h a e n s d , (1 1 . 8 %)
w h o v e r s e t o n e - i (4 6) u a e n d t h e u r t h y a n c l u p e d d e n
w i t h l e d n A I P p r e d o m A n t h e y e v a d h a s e / p r e
d r u g s v e a 6 8 % o a r m i n o s a l 4 i 0 0 % d a e z t a e t , h i a m 8 8 % e ,
f o a n t i a T a n R i b (4 d j) i v e s e n h e p s a e t i e n t s p a e s o n t
w i t h c u p a n c r e a b o t h l i s a 2 d r u g - i n p d a u n c e r d e a t
s h o u b l e d o n s i d e h r e e h d r . o n o r l e o l g a i t c i b e n t s w h e i p o u g s e
a n d h e n s e a c u p t a e n c r e i a s t u i s t e i s u l u a e n , d e s s a o f f i o
s u s p e c t e d g s o m p r a s p i r e m i s s i f t h r p a n c r e a (4 6) i t i
S t o n e - i p a d n u c r e e d a s t h i a t r i a s c t e m r a i z l e e d d o m p a a h
c l i n i a m a b t y r o a n t h e g h - g e a d e p a f a i m e f a t i o a t i
f u i c b l l e e r c T s o c n a (4 6) a t h o r o s e g a h f o t h s e t o m a s
e s t a t h d e s a g n o d s i i o s p a d t h i a n c r e i a s t i a t g i n s o h e e n d
a n k n o v e r a u s e e x c l u d a e r d e c e n t u d f y a t i e n e s e n t i
w i t h c u p t a e n c r e p a r t i t o d r h e i a g n o o s l i s o 2 d h a r h a d
m e d i c a s t o o f r d y i o p p a t h d i c e (4 6) P a t s v e n t i l i o p a t h e g e n t
a c u p t a e n c r e h a t r i b t i s y e a e 4 . 1 % a n A I P d 2 a g n o s
(9 9) T h e s r e d i n i g g h t h h e a t t h A t P s l 2 o u b e d o n s i d e r e d
p a t i v e i n t h e s e v i d o u s g y b d s e d p a d t h i a n c r e a t i t

6 . 3 A 2 P - 1

T h e i g n i f o c d a i n f c f e e r e b n e t t i v a e t e i P a n d A I P i s l e l a t
t o p r o g n o s i s a i n t e r t a n e o r a t h y e l e m o g r a p h i i m i c , c a n j v o l v e
s e r o l a o n g d i i c s , t o d l i o f g f i e c r a e s h e c s e c s r a i b b o e n d e a y a c i l i f a r h a .
t h e i f f e r e b n e t t i v a e d i o a n d A I P (7 1 a b 2) e o f n o t a e n , t i -
t r a n s a l a d o a l r a s i e - p a r d i p a e n t i d d t h e a s t w e t h
c r i t s i c g a n l i f a e s e e j u n d i i f f e r e n t e h e a d i n g e a
s u b t y (8 3) T h e l i n i a d l o a n t h e o p l e o v g i d o e i n a c o e t
h i g h b y i f a d o r l i e f f e r e A n t P a a 2 A i n P g A 1 P m 2 y o m i s
d i a g n o s i e d n i A t l i P a e d c o r t d d o v C h e l m i s t o e l v e i g i a n d
d e n c i e n o a v a i l (4 6) l . T h u s j s a u e q u i s i i s t t o o n g
r e c o m m e n d e d .

6 . 3 P a n c r e a t i d e n o c a r (p a m o n e a a t e c)

C l i n i c l a n d o l s y m p o r d i a n t e r e n t e i t a w d o m a n d
p a n c r e a n t d e h r e v e r a n l u i a n c i d o e f n a c r e c r e a n t d e r
t h e S A e s t i m a t o d e l p e 1 0 0 , p e 0 0 s (6 6) s h i a s t e a r
h i g h t a t h e A I P (- 3 l p e 1 0 0 , p e 0 0 s i o d a s p (4 6)) q u i t e t r u
a p a f r r t o A n t P G 2 e a t t h e 9 0 % p a n c r m a s s e s e t a e d
f n a d l i a g n o f a s c r e a t h i c (4 6) A c c o r d p r o f y e r e n t t h e d i a g n o s t i f e r e b n e t t i v a e d i o a n d
c o n s i d e s r h a o t u f l o d o n s c a e n d r u t g r i a l / t r a e r a e t h e i f t o f l m o d i a c h s e m a d i a s l e a n t h e g a n d b S - g u i d e d
i n i t o a t h e d i n h u e t m o w s t r k e d e p c l u n d a i n i g n n a s i e s e h e o f o p s y t e m o v i s d o p o r b u t i n o d e v l e o r l e v 2 e e l v i
b e e c n o n d u t t e d i n p i r c a a c h b o w e y t h r i s h u g e h a l l e n d e n c i e n t e r o l s i e s a g e r e e m i s t h h e i s t o f l e a g u i t u r e s

P a t i v e i n t h e p a n c r e a n t e y p i p a e s v e i n t h e r s e e v e r a r e v a l u a n d e m p a t r o d P A 1 P i o r l e i k e d y h i b i t
a n d p r o g r e s s i o n p a a m j a u n d o m p a t r o e d t i v e i n t h e m o d e r a t e - t a o t - y m a i r k T h e h a r a c t f e a i t u r l e P - 2

	AIP - 2	AIP - 1	Ref.
Histodendrocytic	Approximately 10%	Approximately 90%	[4,5]
Constrictive	Approximately 10%	Approximately 90%	[4,5]
Peak age	40-50 years, children	Predominant 60-80 years	[9,11]
Gender	No overt difference	Male:Female = 1:2	[9,10]
Ethnicity	Caucasian predominant	Asiatic predominant	[10]
Clinical features	Common	Rare	[1,2,3]
Acute pancreatitis	Less common	Common	[2,32]
Jaundice	Common	Rare	[1,2,3]
IBD	50%	<10%	[1,2,3]
OOI	None	Frequent	[1,11]
Immunoglobulin	Similar	Similar	[2,34,38]
Serum markers			
IgG4	Upt 25%	Upt 25%	[1,11,34]
	Elevated	Normal	[5,47,7]
Anti-transglutaminase	Relatively high	Relatively low	[8,9]
Anti-parietal cells	Relatively high	Relatively low	[8,9]
Distal small intestine	Duct-centric	Duct-centric	[4,30]
Inflammation	Less intense	Intense	[2,3]
Periductal lymphoplasmacytic infiltration	Rare	Characteristic	[2,32]
Storiform fibrosis	Rare	Characteristic	[2,32]
Glycocalyx	Characteristic	Rare	[2,32]
Granulocytic infiltration	Common	Rare	[5,7,2]
Oxidative stress	Positive	Negative	[2,3]
Ductal reactivity	Positive	Negative	[2,3]
Response to steroids	Complete response	Complete response	[8,9]
Second-line treatment	Anti-TNF antibodies	Anti-CD20 antibodies	[2,35]
Relapse	Rare	Common	[1,19]

A b r e v i a t P a u n t s o i m m u n e r e a n c a a n t i n e u c y t o p h i l
p l a s m a n t i c o e d y , r a n u l o p y t h i e s i l a b l o n f a m m a b o v e y l
d i s e l a d e p d i o p a u t h i c c e a n t e r r i e d a d o l t n d i s o ; l e a m 3 n d i o x
e n d a p s p y m p h o p l a s m a e y p a n t o g e d o f o t t h e r g a n
a n j v o l v e m e t r p g r a d e a d h - 1 t h e a t m o e c r b a d s o r -

A l t h o u g h t h e c i s i n a g e x a m i n a t r e a n s i c u l a r
s i g n o r f t a n d i f f e r e w h i d e r b n a s t - C e t s b a n n e d
p r o v k i e e t (9 6) t h o e v e d a l a g n o s t i c o r m l i c e
s u p e r c o s c (7 8 9) O n o t a e n p n - d i n a i p a n d r o e d t i c
i a n d e l a h y e n d o g e n e n d u a n c e n t e r o n g p y t o h r e t i a g n o s i s
A l P a 2 d e f a d e a g n o o s a i n s (9 8 9) A l t h o u g h s i t r o n
e m i s t i o o m g r a p e y) s c a f n a c i l i t h d i e s e r e n t i a
o v e r (4 6) t h e n d i s i g h t b e i d n t e r p r i e t a e u d t b i o m a u s e
b o t h p a n c r e a t i c a n d l a p a y e x h i b i t g h t - i (4 6) k e
a d d i e u (2 1 0) a n d a d i a m i a d b y s a s e d T o P E T - C T
f e a t (1 0 3 5) 4 a r l e l p f o u r t h e i f f e r e n t a d a d t i t o n o n
C A 1 9 (8 9) e m e r g s i e n g m a r k e m s l a n d a t o a n s i p l e o d y
i n (5 1 0) 5 t o M A P - 2 n d h e o M A P - 9 : M M R t (2 0 6) ,
w h i c h o b e d a l i d i a r t u e d t e d i e s .

A l t h o u g h t h e c i s i n a g e x a m i n a t r e a n s i c u l a r
s i g n o r f t a n d i f f e r e w h i d e r b n a s t - C e t s b a n n e d
p r o v k i e e t (9 6) t h o e v e d a l a g n o s t i c o r m l i c e
s u p e r c o s c (7 8 9) O n o t a e n p n - d i n a i p a n d r o e d t i c
i a n d e l a h y e n d o g e n e n d u a n c e n t e r o n g p y t o h r e t i a g n o s i s
A l P a 2 d e f a d e a g n o o s a i n s (9 8 9) A l t h o u g h s i t r o n
e m i s t i o o m g r a p e y) s c a f n a c i l i t h d i e s e r e n t i a
o v e r (4 6) t h e n d i s i g h t b e i d n t e r p r i e t a e u d t b i o m a u s e
b o t h p a n c r e a t i c a n d l a p a y e x h i b i t g h t - i (4 6) k e
a d d i e u (2 1 0) a n d a d i a m i a d b y s a s e d T o P E T - C T
f e a t (1 0 3 5) 4 a r l e l p f o u r t h e i f f e r e n t a d a d t i t o n o n
C A 1 9 (8 9) e m e r g s i e n g m a r k e m s l a n d a t o a n s i p l e o d y
i n (5 1 0) 5 t o M A P - 2 n d h e o M A P - 9 : M M R t (2 0 6) ,
w h i c h o b e d a l i d i a r t u e d t e d i e s .

[illegible][illegible]

7 .T r e a t m e n t i s o g n o s a i l s - 2

7. D.r utgr e a t m e n t

[illegible]

7. ~~St~~ epnl ta c eameshutr g e r y

compliance with the relevant standards and requirements. The results of the audit are as follows:

8 .C o n c l u s i o n s

[illegible]

Table
ComparbiestownAePa2pandcreantier.

	ALP-2	Pancreatic	Ref.
Prevalence	Relatively	Relatively	[9]
Peak age	40-50 years	>50 years	[9]
Clinical features			
Abdominal pain	Mild-to-moderate	Severe, progressive	[9]
Jaundice	Less common	Common (pancreatic adenocarcinoma)	[9]
Body weight loss	Non-mild	Marked	[9]
Serum CA 19-9	Normal	Elevated	[8]
Serum anti-transglutaminase IgG	Relatively higher	Relatively	[8]
Imaging manifestations			
Pancreatic parenchyma	Delayed enhancement of capsule-like	Hypoenhancement of capsule-like	[14]
Pancreatic duct	Stricture, irregular, segmental, up to 1 cm diameter	Stricture, irregular, segmental, up to 1 cm diameter	[14]
Histological appearances			
GELs	Characteristic	Absent	[52]
PD-L1	Positive	Negative	[2]
Atypia	Present; high grade	Frequent; high grade	[10]
Response to treatment	Complete response	Non-response	[78]

Abbreviations: Alt, alternative; EGF, epidermal growth factor; GEL, gelatinolytic; Hsp, heat shock protein; Ig, immunoglobulin; Lys, lysine; M, molecular mass; p, phosphorylated; p115, 115 kDa; p130, 130 kDa; p150, 150 kDa; p170, 170 kDa; p190, 190 kDa; p210, 210 kDa; p230, 230 kDa; p250, 250 kDa; p270, 270 kDa; p290, 290 kDa; p310, 310 kDa; p330, 330 kDa; p350, 350 kDa; p370, 370 kDa; p390, 390 kDa; p410, 410 kDa; p430, 430 kDa; p450, 450 kDa; p470, 470 kDa; p490, 490 kDa; p510, 510 kDa; p530, 530 kDa; p550, 550 kDa; p570, 570 kDa; p590, 590 kDa; p610, 610 kDa; p630, 630 kDa; p650, 650 kDa; p670, 670 kDa; p690, 690 kDa; p710, 710 kDa; p730, 730 kDa; p750, 750 kDa; p770, 770 kDa; p790, 790 kDa; p810, 810 kDa; p830, 830 kDa; p850, 850 kDa; p870, 870 kDa; p890, 890 kDa; p910, 910 kDa; p930, 930 kDa; p950, 950 kDa; p970, 970 kDa; p990, 990 kDa; p1010, 1010 kDa; p1030, 1030 kDa; p1050, 1050 kDa; p1070, 1070 kDa; p1090, 1090 kDa; p1110, 1110 kDa; p1130, 1130 kDa; p1150, 1150 kDa; p1170, 1170 kDa; p1190, 1190 kDa; p1210, 1210 kDa; p1230, 1230 kDa; p1250, 1250 kDa; p1270, 1270 kDa; p1290, 1290 kDa; p1310, 1310 kDa; p1330, 1330 kDa; p1350, 1350 kDa; p1370, 1370 kDa; p1390, 1390 kDa; p1410, 1410 kDa; p1430, 1430 kDa; p1450, 1450 kDa; p1470, 1470 kDa; p1490, 1490 kDa; p1510, 1510 kDa; p1530, 1530 kDa; p1550, 1550 kDa; p1570, 1570 kDa; p1590, 1590 kDa; p1610, 1610 kDa; p1630, 1630 kDa; p1650, 1650 kDa; p1670, 1670 kDa; p1690, 1690 kDa; p1710, 1710 kDa; p1730, 1730 kDa; p1750, 1750 kDa; p1770, 1770 kDa; p1790, 1790 kDa; p1810, 1810 kDa; p1830, 1830 kDa; p1850, 1850 kDa; p1870, 1870 kDa; p1890, 1890 kDa; p1910, 1910 kDa; p1930, 1930 kDa; p1950, 1950 kDa; p1970, 1970 kDa; p1990, 1990 kDa; p2010, 2010 kDa; p2030, 2030 kDa; p2050, 2050 kDa; p2070, 2070 kDa; p2090, 2090 kDa; p2110, 2110 kDa; p2130, 2130 kDa; p2150, 2150 kDa; p2170, 2170 kDa; p2190, 2190 kDa; p2210, 2210 kDa; p2230, 2230 kDa; p2250, 2250 kDa; p2270, 2270 kDa; p2290, 2290 kDa; p2310, 2310 kDa; p2330, 2330 kDa; p2350, 2350 kDa; p2370, 2370 kDa; p2390, 2390 kDa; p2410, 2410 kDa; p2430, 2430 kDa; p2450, 2450 kDa; p2470, 2470 kDa; p2490, 2490 kDa; p2510, 2510 kDa; p2530, 2530 kDa; p2550, 2550 kDa; p2570, 2570 kDa; p2590, 2590 kDa; p2610, 2610 kDa; p2630, 2630 kDa; p2650, 2650 kDa; p2670, 2670 kDa; p2690, 2690 kDa; p2710, 2710 kDa; p2730, 2730 kDa; p2750, 2750 kDa; p2770, 2770 kDa; p2790, 2790 kDa; p2810, 2810 kDa; p2830, 2830 kDa; p2850, 2850 kDa; p2870, 2870 kDa; p2890, 2890 kDa; p2910, 2910 kDa; p2930, 2930 kDa; p2950, 2950 kDa; p2970, 2970 kDa; p2990, 2990 kDa; p3010, 3010 kDa; p3030, 3030 kDa; p3050, 3050 kDa; p3070, 3070 kDa; p3090, 3090 kDa; p3110, 3110 kDa; p3130, 3130 kDa; p3150, 3150 kDa; p3170, 3170 kDa; p3190, 3190 kDa; p3210, 3210 kDa; p3230, 3230 kDa; p3250, 3250 kDa; p3270, 3270 kDa; p3290, 3290 kDa; p3310, 3310 kDa; p3330, 3330 kDa; p3350, 3350 kDa; p3370, 3370 kDa; p3390, 3390 kDa; p3410, 3410 kDa; p3430, 3430 kDa; p3450, 3450 kDa; p3470, 3470 kDa; p3490, 3490 kDa; p3510, 3510 kDa; p3530, 3530 kDa; p3550, 3550 kDa; p3570, 3570 kDa; p3590, 3590 kDa; p3610, 3610 kDa; p3630, 3630 kDa; p3650, 3650 kDa; p3670, 3670 kDa; p3690, 3690 kDa; p3710, 3710 kDa; p3730, 3730 kDa; p3750, 3750 kDa; p3770, 3770 kDa; p3790, 3790 kDa; p3810, 3810 kDa; p3830, 3830 kDa; p3850, 3850 kDa; p3870, 3870 kDa; p3890, 3890 kDa; p3910, 3910 kDa; p3930, 3930 kDa; p3950, 3950 kDa; p3970, 3970 kDa; p3990, 3990 kDa; p4010, 4010 kDa; p4030, 4030 kDa; p4050, 4050 kDa; p4070, 4070 kDa; p4090, 4090 kDa; p4110, 4110 kDa; p4130, 4130 kDa; p4150, 4150 kDa; p4170, 4170 kDa; p4190, 4190 kDa; p4210, 4210 kDa; p4230, 4230 kDa; p4250, 4250 kDa; p4270, 4270 kDa; p4290, 4290 kDa; p4310, 4310 kDa; p4330, 4330 kDa; p4350, 4350 kDa; p4370, 4370 kDa; p4390, 4390 kDa; p4410, 4410 kDa; p4430, 4430 kDa; p4450, 4450 kDa; p4470, 4470 kDa; p4490, 4490 kDa; p4510, 4510 kDa; p4530, 4530 kDa; p4550, 4550 kDa; p4570, 4570 kDa; p4590, 4590 kDa; p4610, 4610 kDa; p4630, 4630 kDa; p4650, 4650 kDa; p4670, 4670 kDa; p4690, 4690 kDa; p4710, 4710 kDa; p4730, 4730 kDa; p4750, 4750 kDa; p4770, 4770 kDa; p4790, 4790 kDa; p4810, 4810 kDa; p4830, 4830 kDa; p4850, 4850 kDa; p4870, 4870 kDa; p4890, 4890 kDa; p4910, 4910 kDa; p4930, 4930 kDa; p4950, 4950 kDa; p4970, 4970 kDa; p4990, 4990 kDa; p5010, 5010 kDa; p5030, 5030 kDa; p5050, 5050 kDa; p5070, 5070 kDa; p5090, 5090 kDa; p5110, 5110 kDa; p5130, 5130 kDa; p5150, 5150 kDa; p5170, 5170 kDa; p5190, 5190 kDa; p5210, 5210 kDa; p5230, 5230 kDa; p5250, 5250 kDa; p5270, 5270 kDa; p5290, 5290 kDa; p5310, 5310 kDa; p5330, 5330 kDa; p5350, 5350 kDa; p5370, 5370 kDa; p5390, 5390 kDa; p5410, 5410 kDa; p5430, 5430 kDa; p5450, 5450 kDa; p5470, 5470 kDa; p5490, 5490 kDa; p5510, 5510 kDa; p5530, 5530 kDa; p5550, 5550 kDa; p5570, 5570 kDa; p5590, 5590 kDa; p5610, 5610 kDa; p5630, 5630 kDa; p5650, 5650 kDa; p5670, 5670 kDa; p5690, 5690 kDa; p5710, 5710 kDa; p5730, 5730 kDa; p5750, 5750 kDa; p5770, 5770 kDa; p5790, 5790 kDa; p5810, 5810 kDa; p5830, 5830 kDa; p5850, 5850 kDa; p5870, 5870 kDa; p5890, 5890 kDa; p5910, 5910 kDa; p5930, 5930 kDa; p5950, 5950 kDa; p5970, 5970 kDa; p5990, 5990 kDa;

I B D w h i c h p r e s i e n t p r o x i m a e t e b l a h y p e a t i t i s h e s e
 f o r t h e s t r e o b l e d a r g u e m e n t s a t i v e i n t h e P w l d h a v e
 n e i t h e r c o n c l u s i o n s t o f l o g i i n t e s a d i o n g u n d e r
 r e c o g n i t a d i t s d i s s a u s b e t f p e l i n i c i l l a n z o u l d
 b e c o n s i d e r a e t d i v e i n t a l f o c a l l y / s d w i o f l p u e s m e c h o y e r a s
 a c u t e / r e p a u n r r e v a l t i i l l a i c s l a d e m o n s t e r t a i t o i (v e e g y
 g t , h o f e r m e d i i a g n o s e d p a d d i n t a c r e a t i d t i d l y i .
 t o l B D c , o m b i n a t o f f a s a n d a d i o a b o g o c m a p r i o t i v e s t
 d i a g n o s t a n s p r o m p t u r t t h i e s r a c e q u i s A i l t o i n o g n t s . h i e
 g l u c o c o t h a e a i s e g e r f b r o t t h e r a p e n d i t a g n o s
 p u r p o a s n e t s i , a t i n f i b o d p e e a s p e r o m i t s i e n g a p e p u t i
 t i o n t h e d i a g n o s t i c f i c r e b e t t i v a t e i f o p n a r t i c o u n l a a s r l - y
 f o r m i n g t y l p a e r , p l a n c r e a t e d e c h a l l e n r t h i n g g a r d
 h i s t o e l v o a g l u a a t E U S - g u c i o d e o p s y r g i r c e a s l e c y t e
 s p e c i m e n s i f r o a r d a c c u d a t a g n o v e i s a u i l t u n d e r e r
 s t a n d i f n t e t i o a o g h y l e c m e d i a n a s u m e s l a s t h e
 d e v e l o p m e n t i o n a g i n v e s t i h e r a p e p t r o a a r c h e e s
 n e e d f e o d r h e l i m i a c n a a l g e m a r l P - 2 .

Confidential interest

The author has a very good command of English.

E t h i æ p a p l r o v a l

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Author contributions

Y L H, Son X M, Ben B L P, Scem G, Ers h S Z, Ma S g,
Sun d S on g e a r d t h e d i t t e r a n t w u r r o e t h e r e v i a e w i c l
W e r e v i e w e d i a c h, p r o v i d e n a n u s c r i p t r e
s u b m i s s i o n .

References

- [1] Sar Ue Sar Remura, tO G e l, e h r o n i t a m m a s t r e y o d i s i t h p a n c r e a s t - a m o n a n s r d a s e A n d D i j i s (1 9 6 1) 6 8 - 9 8
- [2] Yosh F d a o k T i , t a k e u S W a t a n k I S h i r a n t h o r y i a S h i r p n i c p a n c r e a t u i t i s a u t o i m m u n e r e f o p t h e a n c e p t a u t o i m p a n e r e a t i t i s S 4 0 (1 9 1 5) 1 5 6 8
- [3] E c t o r M s a , i R A e r k S e b o a D o n n e B o r c h e a r t N , o n - a l c o h o l i c i t e s t r u c t u r e p a n c r e a t u 4 1 (1 9 2 7) 2 6 8
- [4] N o t o h a r , B u r g b Y a d o V C h a T i S m y r k d , i o p a t h o m i c p a n c r e a t i t i s d i s l y m p h o p l a s m a t y c a l c i n o i n c o p a t h o f e a t o B 6 s a s a n J S u R p a , t 2 0 7 (2 0 1 3) 2 1 2 7
- [5] Z a m b o n i , t t r e a p e l l u i l G o n a i v , a I P l e n d e r e n l i , H i s t o p a t h e a d g u e a b n o r d l i n c r i e a l v i a n u c e o i m m u n e p a n c r e a s t i t u s e s e s p e c i e n t a n d s i o s p e c i m e n s h o w s A r c t a n i n t e r n a t i o n a l t h o 4 0 4 3 0 0 4 5 3 6 3
- [6] T h a G K , l o e p l z e h l a , r K g N o t o h M a r M L e r t i S h i m o s e g a w a H i s t o p a t h o l o g i s c a t a l y t a u t o i m p a n e r e a t i t i o n i o l u l u c o n s e d u s e m a n c r e a : b o f i j o y o u r o n t a h l e n t e r n a t i o n a l A s s o c i a t i o n r e a t o l o g y 1 0 (2 0 1 6) 7 2
- [7] S h i m o s e S y a w a t , F r u l M o l i e r t i K a m i s S k a w a l , M i n o - K e n u d e a r l , i n t e r n a t i o n a l s e a s o n o s t i f e o r a u d i m m u n e p a n c r e a t i d e s t h e n t e r n a s s o c a t i o n r e a t o l o g y p a n c 4 0 (2 0 1 3) 5 3 5 8
- [8] O k a z a k C h a t F r u l M o l i e r t i K a m i s S k a w a l , , I n t e r n a t i o n a l s e a s o n o s t i f e o r a u d i m m u n e p a n c r e a : b o f i j o y o u r o n t a h l e n t e r n a s s o c a t i o n r e a t o l o g y 1 1 (2 0 1 1) 7
- [9] A l a r t i K a m i s W w 8 8 , r u g y e B u n E g , C u l v l e C z , a l e a l , , L o n g - d e r m o m e t o i m p a n e r e a u t i t i s i n t e r n a t i o n a l 6 8 (2 0 1 3) 7 1 7 6

- [1] MasamKNe,k,ustHama,d'saJ.TakeyAnsh,i,mosegatawa,
aINAtionewpiiddeem i os lurgoidaya tlo impaner eia n t a i p a i n s
2015 Gastroe5(20 04)2 70
- [1 R]. Ba S., Cha R Panna ISau, gma rE, la M n J e v e a l . ,
D i f f e r e n c i a l p r o c a h l e d l a r a s e d y p l e e r s y p l e a u t o i m m u n e
p a n c r e a s t r i s e n t 1 3 2 0 1 0 1 4 2 1 . 2 - 3
- [1 2]. Mend R s j o r g e d K e a d h . K a t z m a s m y r J d , o n l i e g e r ,
a l e , l e v a e e d G o d o n c e n t r a t i o n i a n t h i s m a c y e r o s i n g
c h o l a A g n i J G a s , t r o e n t i e 2 r o 0 2 0 7 2 0 7 5
- [1 3]. Gh a z s l e h a t i S m y M k . L e v y . , D . o p a z N i . a k a h e a h i . ,
V a l o e r u m G i a t h e i a g n o o s u i s o i m p a n e r e a n t i d i n t i s
d i s t i n g u i f r s m a n g r e a t A e m J . G a s t r o e n t 2 e 2 r o 0 1 7 .)
t i 0 6 4 6 5 3
- [1 4]. T a k a h a S h u i j , i k a n g a t , o h a K a y a r d a l , n o h e l , r e e h . l . ,
D i a g n o s a g g u g h t e a u t o i m p a n e r e a p t r e a d i 3 0 8 (2 0 2 0)
5 9 - 6 1 2
- [1 5]. S c h e d P a l e S n f o r e e d M a h i , l s c h l a S h a M h . A b u - E l e H a i j a ,
e d a I R e , c o m m e n d a d r i a g a s a s a g e m e a u t o i m p a n e r e a t i t i
i n c h i l d b o o d e n s a i n S P P J R e d i G a s t r o e n t 2 e 2 r o 0 1 .
(2 0 1 2 8) 2 3 6
- [1 6]. N o t a h K a m i s B v F a u , k u s h t i m u a r , u k a w a j h i Y a m a g u c h i ,
e a l G u i d a f n o d r e a g n a s i n g m p a n e r e a i t h i d i s s y s s u e s ,
P a t h o l 1 7 0 (2 0 2 0 9) 1 1
- [1 7]. K a w a g u c k i e f s u r a O k a m o l t o a , b a n A u j i t a ,
L y m p h o l a s m a e y p a n o r g e a i t h i d b a r a y a r i o a n t r i m a r y
s c l e r o s i d h a g e x i t e n s i n w e l l p a i n n c g r h u a m P a t h 2 0 2 (1 9 9 1)
3 8 - 9 5
- [1 8]. D e t l e m s t e r g e m s . S b o r t e M s i e r p o s c r o d i i c e S -
g u i d e n d e e d S h a r k C i o r p a s i t t e y p l a n d y p l e a u t o i m m u n e
p a n c r e a t i t i d n 1 7 . (2 0 1 5 7) 5 2 0
- [1 9]. Z e n D e s h a f n u d n e , f a c i t f i a m a d i s e y a b e p a n c r a m a J s . ,
P a t h o l 1 8 1 2 0 1 8 9 3
- [2 0]. H a r r u M h . D i o p a z A i K h o s r o s t h W h i t z z i . G s a l l e c e ,
n t S . N a r e t a , I R i , t u x i o l g t G 4 - r e i l s a d a p s t e o s : p e a p t e r n e l , a b a l ,
A n n a l t s h e h e u m d i s e a 4 4 2 5 1 1 5 7 1 1 7 7
- [2 1]. N i k o m . L a n z i N i R a n t a B r i s d a m o r , G C a p u e s o l . ,
U n r a v e h e g a t i b o n s w h e i e r o i m p a n e r e a t y t p e a n d i s
i n f a m m a t o v d y l s e a s e u f l r b w o e n t a n d r s s y s t e m a t y i o e w
t h e i t l a n t i e e d o p g e a n s t r o e n j e u r d n 2 0 2 0 7 2 4 2 9 0 6
- [2 2]. Z e r y p l e a u t o i m p a n e r e a d i s t a s s u d n t r o G e a r n i d e s ,
l i v e 6 (2 0 2 3 5) 3 6 5
- [2 3]. S o n j . K i m . , H . K i m . , W a n d j . , H P a r s k . , S e e a l C o m p a r i s o n
o f l i n f i n d a i l h e s w e s t o l o g n d a r i e y l a n d y p l e
a u t o i m p a n e r e a G a s i s o e h e t p e a r 2 0 7 (2 0 1 7 2) 7 0 8
- [2 4]. D e s h p a n G l e p . N a S a , i a n d n V a a h a n V i r c k F e r r e r e d . ,
S u b c l a s s i c a d i m p a n e r e a h t i s t p e a n d i s t o l o g s i c w d a h i o n
c l i n i c i a n l i f a r a d e r G a t i 3 0 5 (2 0 1 6 3 5
- [2 5]. D e t l e G z a m b o l n F r i u l B F r e i y e r a b e n a d n G e r l e a , l . ,
C l i n i c a t a n d e l a r a s e a f s e r g i e n t r y p l e a u t o i m p a n e r e a t i t i
e . d i f f e r e n t y p l e a s t u d y 1 4 u r g i t r a e l e t y e r d o p p e a n t i e n t s ,
P a n c r e a : b d f l e i g o y a l r o n f a h l e n t e r n A s s o c a d P t a i n o c r e a t o l o g y
(I A P e a t 1 1) 2 (2 0 1 2 7) 8 3
- [2 6]. G u p A a n e y A z C h o u g M . A k i Y e a d . F o r c i e o n l e . ,
A u t o i m p a n e r e a t y t p e a i g n o s t i e P D y L 1
i m m u n o h i s t o r a b o i s P a r t y h 4 0 3 (2 0 1 9 9) 0 6
- [2 7]. M i t s u y K a h a h i K i S u m i m y F a u , k u i l k e u r F a u , k e a h . l . ,
C o m p a r i s o n t r o p i t b a t w e y p l a n d y p l e a u t o i m m u n e
p a n c r e a d i r i a s : b d f l e i g o y a l r o n f a h l e n t e r n A s s o c a d i t i o n
P a n c r e a (l o A l P e a t 1 1) 5 (2 0 1 2 5) 2 8 0
- [2 8]. Y u n C h u s . K i n d . O h J . K i m . , K i m e . h a G r a n u l o c y t i c
e p i t h e l s i (a b l l e t e r o p a n c r e a n s c , r e a : b d f l e i g o y a l r o n f a l
t h e n t e r n A s s o c a d P t a i n o c r e a t (l o A l P e a t 1 2) 2 (2 0 2 1 3) 4 2
- [2 9]. S o n j H a r h . . G . K i m . , H . K i n . , M h o n o y p l e a u t o i m m u n e
p a n c r e a i t h i s t o l o g r o g e r h a l y u l e y i t h l e s i a i o n s ,
P a n c r e a : b d f l e i g o y a l r o n f a h l e n t e r n A s s o c a d P t a i n o c r e a t o l o g y
(I A P e a t 1 1) 5 (2 0 1 3 5) 0 7
- [3 0]. C h e o . , B r i W a n g r e v a b e n i c s e t o l f e a i t a u r l e s m b l i n g
a u t o i m p a n e r e i a n t e d i p l a s a r t d e e s c h i e t e p a y l o g y
(2 0 2 0 7) 7 7
- [3 1]. Z h a r s G . h a t i S m y r v k D e s h p a n G k d e p m K . o j i e n a l . ,
A u t o i m p a n e r e (a t l i p y) p l a n d y p l e a n i n t e r n a o n s a s u s
s t u d i n i s t o p a t h i a g u o d i R e a r i a e 4 0 (a 2 0 1 1 7) 2 1 7 9
- [3 2]. K a m i s w e b a s i e J d m y . H . K i m . , E h u r i . E h e a l . ,
C l i n i c a l l e a u t o i m p a n e r e a n t i t s i s t o l o u b i t o y a p l e s :
i n t e r n a t i o n a l s e u n t e y a n . c 4 0 (a 2 0 1 3 2 0) 1 4
- [3 3]. M e n g X i W . L i H . L i B . T i a n W a n g a l d i a g n a o n s i r s e a t m e n t
o f a u t o i m p a n e r e i a d i t i a s y s t e m a t i p e l w o C S n d 0 (2 0 1 5) ,
e 0 1 3 0 4 6 6
- [3 4]. M a i Y d . B a l e u R e , b o M r . S u l l i a C r o y e H a r o d i , e a t l . ,
O u t c o n p e a t i v e h t t y p l e a u t o i m p a n e r e a m J t i s ,
G a s t r o e n t 2 e 2 r o 1 1 5 1 5 6
- [3 5]. J . k e u R a m a n f r e z a m b o n N e g r e C l a p e A l A m o d e a l . ,
o g y A p p l i c a t i n t o e r n a o n s e d i a g n o s i t e a r n d a s e a d e s
a u t o i m p a n e r e a t i t i e d i c o p g e a n s t r o e n j e u r d n (a 2 0 1 3)
2 7 - 8 4

- 10

- [84S] Detleif Jørgensen, Tanaia Sieggagafdis Orduyuckadel, Valoanti-plabmndpuegnadei-cannlymrase immunoglgauindhserolmgeethdifferenfiation autioimpaneeraantpatncrs eant dberd, i917(20181)1,641
 - [85K] Felio Hauwkschnz B KempfWar nke Schnee ddr., Identifochoatvseer amtoant fioddiffeedear tnoofs is autioimpaneeraantpatncrs ead ddenocar Ranooms (20116)93319
 - [86M] Sanch Ceazhno av, Zulila Ampag AGraanato, Agabbe illro, lpeamy lla2saut toanti i h d i i agnoofs is autioimpaneeraantpatncrs ead ddenocar Ranooms (20116)93319
 - [87S] Massi i Emarie Q i goan Pir M i Raiche Caijstet d r j, Systema view-pamodav ead i ammabtoovdy l sease, Alimephaar yna c d t l o g y a p e 5 (2 0 2 4) 7 3 4 9 1
 - [88T] J i d k A g a t s d i H a r a y a n k o y a h m a a , k a b e e t i o d g y p a n c r e a t i c e s i t a t o v e s t i s f a m m a b t o o v d y l s e a G e i n . M e d 8 . (2 0 1 9) 6
 - [89L] RamoDs., B a c h C a r d , i M a j o G o l o m l o d e r , r e n s f a m m a t o r y b o w d l s e a n s p l e a n c r e a t e r a t i v e s u , r o m d i o b a c o l 1 0 (i 2 s 0 1 6) 9 5 1 0 4
 - [90A] Gar G a a d i P a a r e E r o d r i o e a n t i C a r g o d , r i g u e z - E s c a j a M . l b o A r a l , g a b a d a m e a b l l d o p a d i p a n c r e a t a t t i e n t s w i t h i n f a m m a b t o o v d y l s e a n s u e l t i c o o n t e s t r u E g p c r e a t o l o g y o f f c j o a I r o n t a h l e n t e r n A s s o c i a t i o n c r e a t (l o a l P e j) 2 (2 0 2 0) 3 3 7
 - [91T] J . k e i S r D a e , t l e G Z a m b o R n M a n f r e R e l e g r a A l m i o , d e d l . , R e t r o s p e c t i v e l e s t o n e o p e d a g n o y s i n t e r n a t i o n a l C o n s e d s a n o s t t e a n t i a s t o l d o i g a n o b a i s i w e t h c a l a u t o i m p a n e r e a t t a i n t d e r s w e m t w e i r t h u s p i o c t i o m c e r , P a n c r e a 8 (2 0 1 6) 9 0 3
 - [92M] T a c e C l e s l , B a g r l o B a r r s G u a s t G e a p u e s o l R i s k f a c t o r s o f e l a a n s d e f e o d t t s e m a i i d t e m b e c a n p r i e n t s w i t h u t o i m p a n e r e a t t i e n t s e v a n e t a - a n C a l l i y s . i s , G a s t r o e H e t p a r t o h e a f c o i a l i p i r a c c i j o c o n t a h A m e r i c a n G a s t r o e n t A s s o c i a t i o n 6 1 (2 0 1 9) 6 1 - 7 2 . e 8
 - [93D] P o d d i A u t e q i m p a n e r e a n t p a t n c r s e a n t d e p r i d e m i o l o g i c a s p e a c t i n m u n o l o g i s a d e W a t J G a s t r o e n 7 (2 0 2 1) 3 8 2 3 8 3 6
 - [94N] d P r e l F s u l A u t o i m p a n e r e t a y t p e c u s O r p i n . G a s t r o e n 6 (2 0 2 4) 7 2 0
 - [95S] K a w k P k a z a k i a m i s k v k a u b h D h a o A h a s e b a l . , A m e n d e n h J a p a n e s e g u s i d e f i d a n e t s o i m p a n e r e a t i 2 0 1 1 3 E x t r a p a n e s e i d n i s f e d e a t y n h G a s t r o e n 9 t e r o l . (2 0 1 7) 8 4
 - [96H] M a t s u b a t y S a n h i t s h i k a W a s h i w M E a n d h U r i k e a . , C o m p a r a i f s o n - p h a n s p u t t e n d o g r a n p d e f t s y p l a u t o i m m u n e p a n c r e a t i p a n c r e a n t d e m p r a s n d a s w e i s t a t y p i m a g e s , P a n c r e a b d f i g o j o a I r o n t a h l e n t e r n A s s o c i a t i o n c r e a t o l o g y (I A P e a t 1 2) 1 (2 0 2 6) 7 5
 - [97Y] Z h a b l i n , A n Z P e n a t y p e c a n c o e m p u t t e n d o g r a p i o n f s p a n c r e a n t d e m i d s i f f e d e a t y i n t o r s o a m s t o i m p a n e r e a t i t i s , G l a s d r 1 0 (2 0 2 1) 3 5 4
 - [98J] K w o d K i n S , K i m J , Y u H , K i n M , L e e J D i , f f e r e h d a l t i n g a u t o i m p a n e r e a n t p a t n c r s e a d d e n o c a r c o n o m a s t e n h a m R e w d i s t p e e m p h a s t i s e r t e p h i a a l e R a d i o 9 (2 0 1 9) 5 7 6 5 7 7 1
 - [99M] P a l e z - L Q M a d i n a - C l a t h p o n g a - D d H e r n a n d e z - C a l l e i C o s a n a B E N e g r e t a A n d i a i p a d n c r e a t i c p r e d i t y p e a u t o i m p a n e r e a n t p a t n c r s e a d d e n o c a r c i n o m a s t e n h a m R e w d i s t p e e m p h a s t i s e r t e p h i a a l e R a d i o 9 (2 0 1 9) 5 7 6 5 7 7 1
 - [100O] J o h t a k O f u y A k a z a w S a i t N o s a K O z a l e a , I C l i n i c a l u s e f u d n e 8 5 - F l u o r o - 2 - D e o x y m i d s - 5 - m e t h y l t h i o p y r i d i n e c o m p u t t e n d o g r a p i o n s t i n g b u e i s h w a i n g i o i m p a n e r e a n t p a t n c r s p a n c r e a t i p e a n , c 5 0 (2 0 2 1) 1 4 0 1 9
 - [101E] P r o s m d a o n o f r D e r o b e E D i e m o , z S C i a n e s G Z i a m i b o n i , e a l A u t o i m p a n e r e a t i t i s o r d a n l - i t r y m a g d e a g n o s i s , W o r l d G a s t r o e n 2 0 (2 0 1 6) 8 1 8 9 0
 - [102H] K c h a s . , M o o r t . , S o n g . , K i n d . , W o h d . , H P a r k a I C o n t r a s t e n h a n e c c o s a d p i r a s o d i n f d e r e n a g a a s y o g m m u n e p a n c r e a n t p a t n c r s e a n t d e a r a n d i v l e 2 (2 0 1 5) 5 9 6
 - [103P] P a r k . , C h u r . , H u r u b a W p g e l K t W k i n n , Z a e y u i e l a e l . , D i f f e r e n t i a t i o n p a n e r e a t o r n i s r e a d d e n o c a r c i n o m w i C h i r a d i o f n e i a s t d i e a g n a s d i n t e r v e i m t a i g n a d i 2 0 2 0) 5 5 5 6 4
 - [104J] i M L C , Z u Z Y a n X Y a n S R e r e A R a d i o m o d e d u a l - t i m e 2 - [(1 8) P F E] T F / D D a g i o g s t i n g u w p l a n c r e a t i a l a d e n o c a r c i n o m a i m p a n e r e a t R a d i o 3 0 (2 0 2 1) 6 9 8 9 9 1
 - [105B] P h a s s e m - K Z a u d e m a A g B a u d e r E r o s M a Y o s h H d K a u t s u m i , e a l N o v a l t o a n s i t t h o d a y m e e p a t i v e p h a n c r e a n t e r , c h r o p a n c r e a n t i u t i o s i m p a n e r e a p r i o t i t e s i c n o p r o d y l i n g a p p r o l a r i h m o s c 2 1 (2 0 2 0) 3
 - [106F] F e l s D o b i a m s C M G a i K e s c h n e J W e r n e M a r t e r a l . , D i f f e r e n t i a t i o n a u t o i m p a n e r e a t o r n i s r e a n t d e r a n a l y s e s g m l a t i e n a B e s c a 4 5 (2 0 1 6) 4 3 0 5 5
 - [107D] T h a n g K i . d i h . H u d h y u a h . , R e y n o M . d v c , r u M s d . , C P o l i c a r p i R e W i t t i c h t e r g o l f r e a t i v e s o i m m u n e p a n c r e a n t i n s i s t e x t p i o n d e m m o e y r o p a t h 3 0 (2 0 2 3) 2 3 - 2 4 4
 - [108H] H e d e g a d e n M e n B o r t e r G S k e d n p l l F N B e l G n i p l e n , S d e t l e U r s i e n p M y h a s p l i m P S 1 0 a n d i G i t h d e i s t i o c t i o n a u t o i m p a n e r e a t o r n i s r e a d d e n o c a r c a n t R o e t s . , P r a 2 i 6 (2 0 2 1 0 5) 2 , 9 2 5
 - [109M] a c i a g P a u , l k e r l B o a v j a M a l u s M o O r l a i v e r S m e j e a l . , S i m u l t a n e o u s o a n c t e o i m p a n e r e a n t p a t n c r s e a n t d e r p a t i e n t s e f e e d o p a n c r e a s W e r J G a s t r o e n 3 (2 0 2 7) 2 1 8 2 1 9 3
 - [110J] D i c k e A f o a r p o B a n a n K l e R B f a r M n R a r a e t y l . , D i f f e r e n t i a t i o n i m p a n e r e a t o r n i s r e a n t d e m a i n s c h a l l e W g r i j n g y 3 (2 0 1 5) 9 1 6 1 1
 - [111P] M a c i a g B a a , j e d e , C h i a S r o c h a P d j t l e F r u l e d a n i . , P a n c r e a n t e r a t i v e n h a s t o i m p a n e r e a s t c