



Università di Padova
22 Novembre 2014

LA GESTIONE TERAPEUTICA DELLA PANCREATITE

Federico Fracassi

Dipartimento di Scienze Mediche Veterinarie, Università di Bologna

ALMA MATER STUDIORUM - UNIVERSITÀ DI BOLOGNA

Segnalamento

Pancreatite

Cane
Meticcio
M
Anni 10
Kg 8.5



Anamnesi

Pancreatite

- 🚩 PU/PD da una decina di giorni
- 🚩 Da 2 giorni vomito 8-10 episodi al giorno
- 🚩 Forte abbattimento sensoriale
- 🚩 Veterinario curante: metoclopramide e antibiotici
- 🚩 Prima di stare male mangiava di tutto!

Visita Clinica

Pancreatite

- 🚩 Forte abbattimento sensoriale
- 🚩 Polso debole
- 🚩 Dolore addominale
- 🚩 T=38.3° C P=150/min R=30/min

Visita Clinica

Pancreatite



Diagnosi Differenziale

Pancreatite

Vomito
PU/PD
Dolore addominale

Protocollo Diagnostico

Pancreatite

- Glicemia
- Emogasanalisi
- Rx addome
- Esame Emocromocitometrico
- Profilo Biochimico
- Esame chimico-fisico urine
- Ecoaddome

Prime analisi

Pancreatite




pH 7,44	(7,35-7,45)
pO2 (mmHg) 51	
pCO2 (mmHg) 58	(30-42)
HCO3 ⁻ (mmol/L) 36	(18-25)
AG (mmol/L) 19	(13-21)

Pancreatite





Pancreatite

Emocromo

ESAME	Valore	Un.mis.	Range di riferimento
Emoglobina	18.7	gr%	12 ... 18
Ematocrito	52.7	%	37.0 ... 55.0
Eritrociti	8410000	/mm ³	5500000 ... 8500000
Piastrine	566000	/mm ³	160000 ... 500000
Leucociti	→ 25300	/mm ³	6000 ... 17000
MCV	→ 62.7	fL	60.0 ... 77.0
MCHC	35.5	gr%	32.0 ... 38.0
MCH	22.2	pg	19.5 ... 24.5
RDW	17.8	%	13.0 ... 15.7
Linfociti	1771	/mm ³	1000 ... 4800
Neutrofili	→ 23529	/mm ³	3000 ... 12000
Cellule bersaglio		percent	←
Stima piastrinica		adeguata	
Macroplasmie		assenti	
Gran. tossiche		percent	←
Aggregati piastrinici		assenti	
Registro Ematologia	00042764	Progressivo	
Specie	Cane	Razza	Meticcio
Nome	Gigi	ID soggetto	0409014835
Sexuo	M	Nato il	03/08/2000

Pancreatite

Profilo Biochimico

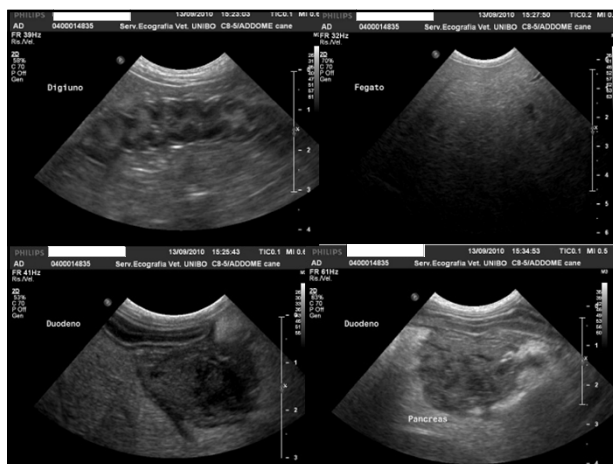
ESAME	Valore	Un.mis.	Range di riferimento
AST	→ 37	U/l	20 ... 42
ALT	→ 74	U/l	20 ... 55
Fosfatasi alcalina	→ 562	U/l	42 ... 180
Creatinina	→ 5.45	mg/dl	0.65 ... 1.35
Urea	→ 356.65	mg/dl	18 ... 55
Glucosio	→ 1180	mg/dl	70 ... 125
Bilirubina Totale	→ 0.77	mg/dl	0.07 ... 0.34
Colesterolo Totale	→ 803	mg/dl	140 ... 350
GOT	→ 5.3	U/l	0 ... 5.8
Amilasi	929	U/l	340 ... 980
Lipasi	403	U/l	70 ... 700
Proteine totali	6.68	g/dl	5.60 ... 7.90
Albumina	3.02	g/dl	2.80 ... 3.70
Albumina/Globuline	0.83		0.60 ... 1.30
Calcio	9.1	mg/dl	9.0 ... 11.8
Fosforo	→ 12.30	mg/dl	2.6 ... 4.90
Sodio	→ 115	mEq/l	143 ... 154
Potassio	→ 2.7	mEq/l	3.9 ... 5.3
Aptoglobina	→ 754.0	mg/dl	20 ... 140
C-Ret-Prot	→ 20.13	mg/dl	0 ... 0.5

Pancreatite

Profilo Urinario

Esame chimico-fisico:
 PH= 5.0
 P.S.= 1038(>1030)
 Proteine = +
 Emoglobina = +
 Leucociti = +
 Glucosio= ++++
 Corpi chetonici ++
 Sedimento: leucociti=+





Pancreatite




Lipasi pancreatica specifica (cPLI):
 >650 µg/l (<200 µg/l)

Pancreatite

Coagulativo

ESAME	Valore	Un.mis.	Range di riferimento
PT	7.7	sec	5.0 ... 7.5
aPTT	15.6	sec	8.0 ... 16.5
Fibrinogeno Turb.	5.21	g/l	1.45 ... 3.85
D-Dimeri	0.17	µg/ml	0 ... 0.26
ATIII	84.0	%	105 ... 166

Pancreatite

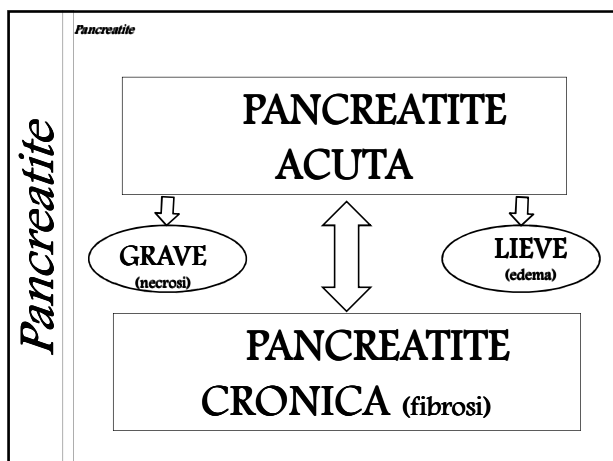


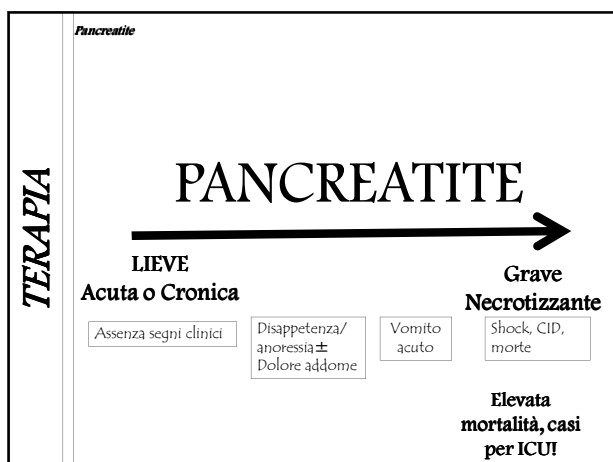
DIAGNOSI

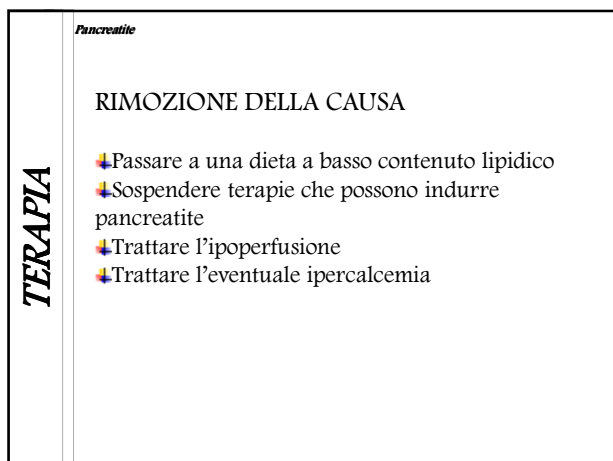
PANCREATITE ACUTA

+

Diabete mellito chetosico









Pancreatite

Fluidoterapia:
Disidratazione+mantenimento+perdite aggiuntive



Supplementazione di K⁺

K ⁺ sierico (mEq/L)	KCl, in mEq, da aggiungere a 250 ml di fluidi
3,6-5,0	5
3,0-3,5	7
2,6-2,9	10
2,0-2,5	15
<2,0	20

* la supplementazione non deve superare i 0,5 mEq/Kg/h



Pancreatite

TERAPIA DI SUPPORTO

N.P.O.???



Solo se vomita!

Pancreatite

TERAPIA DI SUPPORTO





Pancreatic

Clinical Practice Review

Journal of Veterinary Emergency and Critical Care 24(3) 2014, pp 240-250
doi: 10.1111/vec.12180

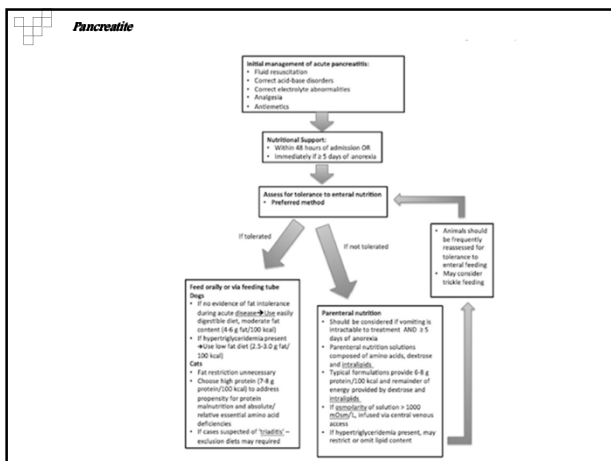
Nutritional management of acute pancreatitis in dogs and cats

Kristine B. Jensen, DVM, MVetMed, MRCVS and Daniel L. Chan, DVM, DACVECC, DACVN, MRCVS

Abstract

Objective – To review current and emerging nutritional approaches in the management of acute pancreatitis (AP) in people, dogs, and cats, and to provide a framework for further investigation in this field.
Data sources – Veterinary retrospective studies and reviews, human prospective clinical trials and reviews, and experimental animal studies focusing on nutritional management during AP.
Summary – Nutritional management is an important part of the treatment plan for patients with AP. In human medicine, the general approach for providing nutrition in patients with AP has changed in recent years and favors enteral over parenteral nutrition with an emphasis on early enteral nutrition (EN). Although there are limited data available, there is increasing evidence in the veterinary literature that supports the beneficial role of EN in AP and contradicts previous assumptions about poor tolerance to enteral feeding in this patient population. Parenteral nutrition may be appropriate alone or in combination with EN as a temporary measure in malnourished patients that do not tolerate adequate EN; however, enteral feeding should be attempted first in most cases. Immunonutrition is being investigated for its positive role in modulating pancreatic inflammation and improving gut barrier function in cases of human AP.
Conclusions – The nutritional management of veterinary patients with AP remains challenging. Based on clinical evidence in people, experimental animal studies, and preliminary studies in dogs and cats, the choice of EN over parenteral nutritional support during AP in dogs and cats appears to be beneficial and well tolerated. Optimization of nutritional therapies in dogs and cats including the use of immunonutrition during AP warrants further investigation.

(J Vet Emerg Crit Care 2014; 24(3): 240-250) doi: 10.1111/vec.12180



Pancreatite

TERAPIA

**TERAPIA DI SUPPORTO
ANALGESIA**

Oppioidi
Es. Buprenorfina 0,005-0,02 mg/kg IM, IV o SC q 6-12h
Fentanyl in infusione continua 0,1-0,2 mcg/kg/min
o cerotto

Lidocaina
Infusione continua con pompa siringa 50mcg/kg/min

Pancreatite

TERAPIA

**TERAPIA DI SUPPORTO
ANTIEMETICI**

Utilizzo controverso!

Metoclopramide meglio di no: inibitore della dopamina e il flusso ematico pancreatico è regolato da recettori dopaminergici

Dolasetron 0,3-0,6 mg/kg q 12-24h

Maropitant (Cerenia®)
Inibitore NK-1 1mg/kg q24h SC

Pancreatite

TERAPIA

**TERAPIA DI SUPPORTO
PLASMA**

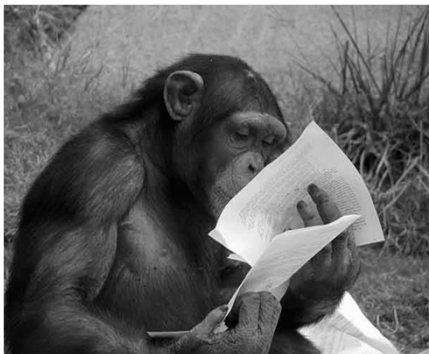


α2-Macroglobulina
Albumina
Fattori della coagulazione

50-250 ml /die

Pancreatitis

EVIDENZA???



Pancreatitis

Retrospective Study

Journal of Veterinary Emergency and Critical Care 19(6) 2009, pp 617-622
doi:10.1017/j.vecc.44312009.00463.x

Evaluation of fresh frozen plasma administration in dogs with pancreatitis: 77 cases (1995–2005)

Linda K. Weatherston, DVM and Elizabeth M. Streeter, DVM, DACVECC

Abstract

Objective – Compare outcome of dogs that did and did not receive fresh frozen plasma (FFP) for treatment of pancreatitis.

Design – Retrospective case series between 1995 and 2005.

Setting – University referral hospital.

Animals – Seventy-four dogs were enrolled with a total of 77 cases as 2 dogs had repeat episodes of pancreatitis. Diagnosis of pancreatitis was based on clinical signs, physical examination, and abdominal ultrasonographic examination.

Interventions – The medical database was searched for dogs with a diagnosis of pancreatitis. Information collected included signalment, vital signs, CBC, use of FFP, length of stay, use of antimicrobials and supplemental nutrition, surgical intervention, preexisting illness, evidence of a coagulopathy and outcome. Outcome was compared between those patients that did and did not receive FFP.

Measurements and Main Results – Fifty-nine dogs survived to discharge. Two dogs with repeat pancreatitis survived to discharge after each episode. Thirteen dogs died and 2 were euthanized. FFP was administered to 20 dogs. Two dogs that were hospitalized for repeat pancreatitis did not receive FFP. Seven of 20 (35%) cases that received plasma died or were euthanized compared with 6 of 57 (12%) cases that did not receive plasma. Plasma administration was significantly related to outcome ($P < 0.001$). Severity of illness scores were difficult to assign; however, dogs meeting criteria for systemic inflammatory response syndrome were not more likely to receive FFP. Other therapies included supplemental nutrition, antimicrobials, and surgical intervention, which did not affect outcome.

Conclusions – *Mortality rate for those dogs receiving plasma was higher than those that did not. Severity of illness scores were difficult to assign; however, preexisting illness, evidence of systemic inflammatory response syndrome, and presence of a coagulopathy were not significantly different between the groups that did and did not receive FFP. No benefit for administration of FFP was noted.* Additional investigation should be performed to confirm this result.

Pancreatitis

TERAPIA DI SUPPORTO ANTIBIOTICI

TERAPIA

- ⚡ Molto improbabili le pancreatiti batteriche nel cane
- ⚡ Poca evidenza scientifica sulla loro utilità
- ⚡ Utili per le infezioni secondarie
- ⚡ Eventualmente:
Amoxicillina + a.clavulanico
Ampicillina + sulbactam

Pancreatite

TERAPIA

TERAPIA DI SUPPORTO

- Evitare gli antinfiammatori tranne nel gatto con concomitante IBD
- Antiossidanti?
- Dopamina nel gatto?

TERAPIA FORMA LIEVE

- Dieta a basso tenore lipidico
- Ridurre il dolore: enzimi pancreatici



Pancreatite

Fluidoterapia:
Disidratazione+mantenimento+perdite aggiuntive
 $\frac{1}{2}$ NaCl 0,9% + $\frac{1}{2}$ glucosio 5% + KCl
5 ml/kg/ora

Supplementazione di K⁺ nel trattamento della chetoacidosi diabetica*

K ⁺ sierico (mEq/L)	KCl, in mEq, da aggiungere a 250 ml di fluidi
3,6-5,0	5
3,0-3,5	7
2,6-2,9	10
2,0-2,5	15
<2,0	20

* la supplementazione non deve superare i 0,5 mEq/Kg/di





Pancreatite

Terapia

Macintire D.K. *Treatment of diabetic Ketoacidosis in dogs by continuous low-dose intravenous infusion of insulin* Am Vet Med Assoc; 1993; 202:1266-1272

Tipologia di fluidi e quantità di insulina da infondere durante chetoacidosi diabetica

Glicemia (mg/dl) della soluzione con insulina (ml/h)*	Soluzione da infondere	Velocità di infusione
>250	0,9% NaCl	10
200-250	0,45%NaCl + 2,5%glucosata	7
150-200	0,45%NaCl + 2,5%glucosata	5
100-150	0,45%NaCl + 5%glucosata	5
<100	0,45%NaCl + 5%glucosata	sospendere

*Soluzione costituita da insulina regolare cristallina "R", al dosaggio di 2,2 U/Kg (cane) o 1,1 U/Kg (gatto) in 250 ml di NaCl 0,9% o soluzione di Ringer.





Pancreatite

Terapia

- ✚ Buprenorfina
- ✚ Ampicillina Sulbactam
- ✚ Omeprazolo
- ✚ Maropitant 1 mg/kg SC
- ✚ Eparina a basso peso molecolare (Seleparina) 150 U/Kg q8h sc



Pancreatite

Terapia : dopo 3 giorni

- ✚ Miglioramento della condizioni generali
- ✚ In grado di deambulare (dal 2° giorno)
- ✚ Apparentemente addome non dolente
- ✚ Solo qualche episodio di vomito
- ✚ Discreto controllo glicemico
- ✚ Calo chetonemia



Pancreatite

Terapia : dopo 3 giorni

ESAME	Valore	Un.mis.	Range di riferimento
Emoglobina	15.4	gr%	12 ... 18
Ematocrito	44.8	%	37.0 ... 55.0
Eritrociti	6850000	/mm ³	5500000 ... 8500000
Plastine	321000	/mm ³	160000 ... 500000
Leucociti	15800	/mm ³	6000 ... 17000
MCV	65.4	fL	60.0 ... 77.0
MPV	13.7	fL	6.6 ... 10.9
MCHC	34.3	gr%	32.0 ... 38.0
MCH	22.4	pgr	19.5 ... 24.5
RDW	16.0	%	13.0 ... 15.7
Linfociti	790	/mm ³	1000 ... 4800
Miosociti	2686	/mm ³	100 ... 1400
Neutrofili	12166	/mm ³	3000 ... 12000
Eosinofili	158	/mm ³	0 ... 750
Sema piastrinica	adeguata		
Macroplattine	assenti		
Aggregati piastrinici	assenti		

Pancreatite

Terapia : dopo 3 giorni

ESAME	Valore	Un.mis.	Range di riferimento
AST	→ 42	U/l	20 ... 42
ALT	→ 71	U/l	20 ... 55
Fosfatasi alcalina	→ 1124	U/l	42 ... 180
Creatinina	→ 1.46	mg/dl	0.65 ... 1.35
Urea	→ 104.33	mg/dl	18 ... 55
Glucosio	→ 274	mg/dl	70 ... 125
Amilasi	→ 675	U/l	340 ... 980
Lipasi	→ 102	U/l	70 ... 700
Proteine totali	→ 5.25	g/dl	5.60 ... 7.90
Albumina	→ 2.49	g/dl	2.80 ... 3.70
Albumina/Globuline	0.90		0.60 ... 1.30
Sodio	146	mEq/l	143 ... 154
Potassio	3.7	mEq/l	3.9 ... 5.3
Aptoglobina	→ 647	mg/dl	20 ... 140
C-Reac-Prot	→ 5.74	mg/dl	0 ... 0.5
D-Dimeri	0.07 µg/ml		0 ... 0.26
ATIII	→ 69 %		105 ... 166

Pancreatite

Quarto giorno....



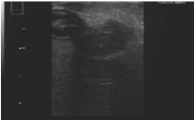
Inizio terapia insulinica SC

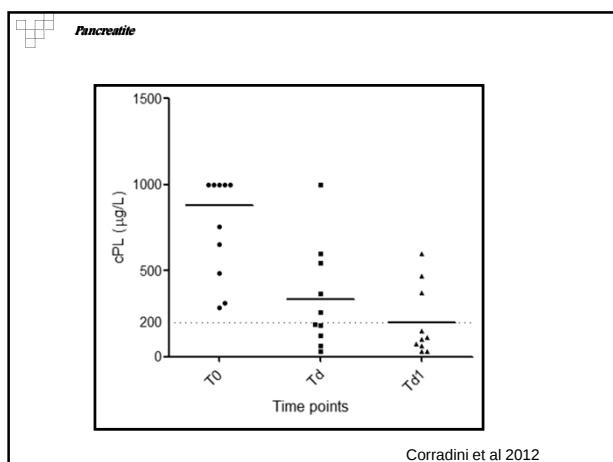
Pancreatite

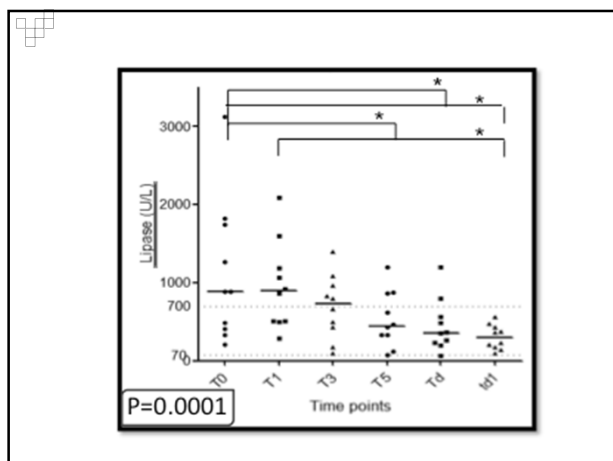
Ottavo giorno

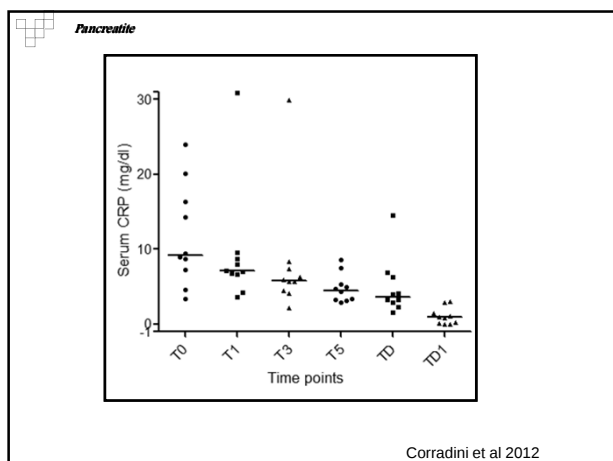
ESAME	Valore	Un.mis.	Range di riferimento
AST	→ 57	U/l	20 ... 42
ALT	→ 829	U/l	20 ... 55
Fosfatasi alcalina	→ 1144	U/l	42 ... 180
Creatinina	0.73	mg/dl	0.65 ... 1.35
Urea	26.03	mg/dl	18 ... 55
Glucosio	→ 152	mg/dl	70 ... 125
Bilirubina Totale	0.20	mg/dl	0.07 ... 0.34
Colesterolo Totale	204	mg/dl	140 ... 350
GOT	→ 14.3	U/l	0 ... 5.8
Amilasi	601	U/l	340 ... 980
Lipasi	94	U/l	70 ... 700
Proteine totali	5.88	g/dl	5.60 ... 7.90
Albumina	→ 2.58	g/dl	2.80 ... 3.70
Albumina/Globuline	0.78		0.60 ... 1.30
Calcio	9.27	mg/dl	9.0 ... 11.8
Calcio corretto	10.2	mg/dl	8.0 ... 12.0
Fosforo	4.0	mg/dl	2.6 ... 4.90
Sodio	→ 135	mEq/l	143 ... 154
Potassio	→ 4.4	mEq/l	3.9 ... 5.3
Aptoglobina	→ 347	mg/dl	20 ... 140
C-Reac-Prot	→ 3.07	mg/dl	0 ... 0.5

Lipasi pancreatica specifica (cPLI):
 <30 µg/dl (range <200)









Pancreatite

Ottavo giorno



Dimissione

Pancreatite

Controllo a un mese...

Il proprietario dice che....

- ✚ Ottime condizioni generali
- ✚ Feci molto voluminose

ESAME	Valore	Un.mis.	Range di riferimento
Fruttosammina	274.3	µmol/l	260 ... 370
TLI canino	→ 0.1	µg/l	5.0 ... 35.0
Folati	9.55	µg/l	6.50 ... 11.50
Cobalamina	→ 122.00	ng/l	250 ... 750
