

實證醫學病例討論報告

ER Intern 何珮琳,

2013.04.01

Clinical scenario

- Name : 李 O 頻
- Number: 14102279
- Age: 90 y/o
- Gender: female

Clinical scenario

- This is a 90 year old female who had :
 - poor appetite for 1-2 weeks
 - a gradual onset peri-umbilical pain since yesterday
 - other associated S/S : fever(+, mild), nausea/vomiting (-), stool (+, soft), peritoneal sign (+)
 - Past History: DM(+), HTN(+), old stroke (+)

- At ER :

- vital sign : RR: 20 cpm, PR: 127 bpm,BT:39.8'C

- Abdomen CT (2/28) impression:

- air accumulation in the mesenteric space at right aspect of abdomen and segmental wall thickening of the small intestine.

- with suspected of ischemia bowel, emergent exploratory laparotomy was performed !

- OP finding : ischemic bowel change was found from 30 cm distal to Treitz ligament till ascending colon

愛子不治 靈車辣妹鬧醫院

「腸中風卻掃描腦」 父率200親友撒冥紙

2013年03月22日



讚

4,903



+1

4



抗議隊伍中有黑衣熱褲辣妹，在吉普車頂跳鋼管助陣。莊淇鈞攝

【林媛玲、莊淇鈞/新北報導】新北市一名男廚師日前因腹痛到市立醫院板橋院區就診，五小時後病情惡化轉院開刀才知是腸中風，結果隔天中午就死亡。死者父母痛失愛子，控告兩名醫生害命，昨率領近兩百名親友，隨棺包圍市醫撒冥紙抗議，甚至連鋼管辣妹也前往助陣，陣仗相當誇張；對此，市醫說已盡力救治。

Background Questions

AMI : acute mesenteric ischemia

Q1 : What are the risk factor of AMI :

- **Answer :** atrial fibrillation, congestive heart failure, peripheral vascular disease, or a history of hypercoagulability, advanced age, atherosclerosis, low cardiac output states, cardiac arrhythmias, severe cardiac valvular disease, recent myocardial infarction, and intra-abdominal malignancy

Q2 : What are the clinical presentation of AMI ?

- Answer :

- Rapid onset of severe periumbilical abdominal pain
 - Nausea and vomiting
 - PE : may be normal initially
 - After progress → distended(+), bowel sounds become absent, and peritoneal signs (+), a feculent odor to the breath, mental status change
- nonspecific !

Q3 : Current Diagnosis material ?

- Answer :

Mesenteric angiography remains the gold standard (a guideline proposed by the American Gastroenterological Association, 2000)



American Gastroenterological Association
Advancing the Science and Practice of Gastroenterology

Back to clinic.....

- Since rapid diagnosis is essential to prevent the catastrophic events associated with intestinal infarction, is there any lab data (with high sensitivity and specificity)that can early detect AMI ?
 - Perhaps !

Foreground questions

將問題寫成PICO

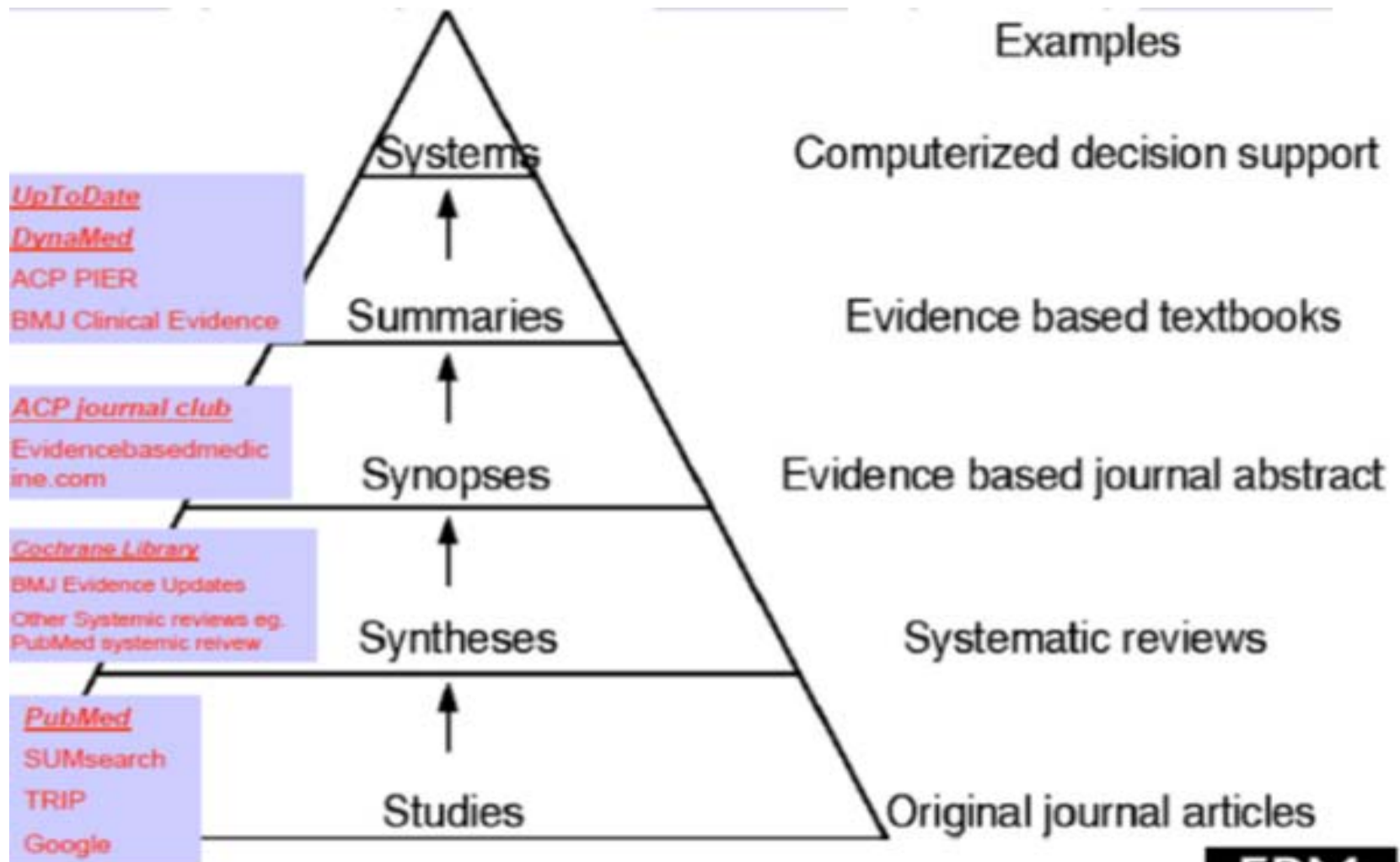
P old age patient with suspected of
 ischemic bowel disease

I	D- dimer and lactate
---	----------------------

C **other lab data** for early diagnosis

O	diagnosis Specificity and sensitivity
---	---------------------------------------

搜尋最有用的資料



搜尋Summaries: UpToDate

- Key words : *acute ischemia bowel, mesenteric ischemia, biomarkers*



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Acute mesenteric ischemia

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Disclosures

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Literature review current through: Feb 2013. | This topic last updated: 五月 4, 2012.

搜尋Synopsis : ACP Journal Club

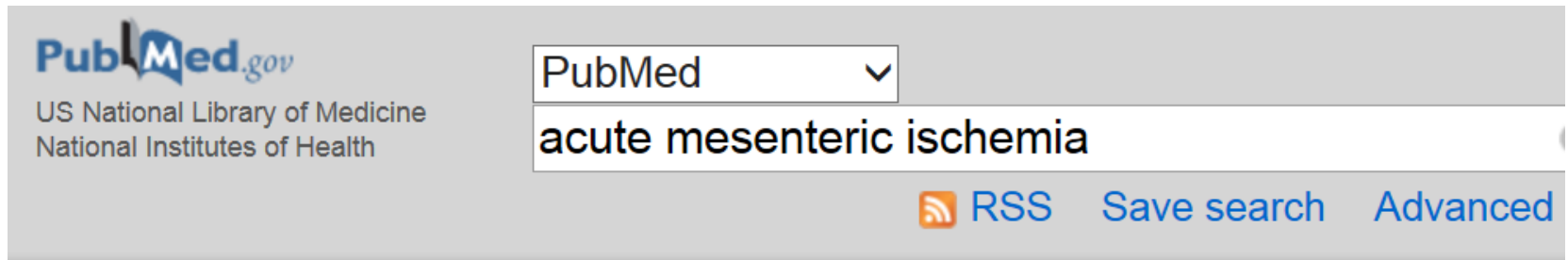
- Key word : *ischemia bowel, mesenteric ischemia, biomarkers*
- No relative findings

搜尋 Syntheses: Cochrane Library

- Key word : *ischemia bowel, mesenteric ischemia, biomarkers*
- No relative findings

搜尋Studies: Pubmed

- Key words : *acute mesenteric ischemia, biomarkers*



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PubMed

acute mesenteric ischemia

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J Thromb Thrombolysis. 2012 May;33(4):355-61. doi: 10.1007/s11239-011-0660-z.

Current status on plasma biomarkers for acute mesenteric ischemia.

Acosta S, Nilsson T.

Vascular Center, Skåne University Hospital, Malmö, Sweden. Stefan.acosta@telia.com

Appraisal (嚴格評讀)

對找到的文章
進行critical appraisal

PubMed

Current status on plasma biomarkers for acute mesenteric ischemia

Stefan Acosta • Torbjörn Nilsson

Published online: 13 November 2011

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AAAMPICOT

- **Answer:**

- 此文獻有沒有回答我的問題?

- Yes

- **Author:**

- 作者群是這領域的專家嗎?

- Yes

- 有沒有利益衝突?

- Not mentioned

Method

Level	Therapy / Prevention, Aetiology / Harm	Prognosis	Diagnosis	Differential diagnosis / symptom prevalence study	Economic and decision analyses
1a	SR (with homogeneity*) of RCTs	SR (with homogeneity*) of inception cohort studies; CDR ¹ validated in different populations	SR (with homogeneity*) of Level 1 diagnostic studies; CDR ¹ with 1b studies from different clinical centres	SR (with homogeneity*) of prospective cohort studies	SR (with homogeneity*) of Level 1 economic studies
1b	Individual RCT (with narrow Confidence Interval ¹)	Individual inception cohort study with > 80% follow-up; CDR ¹ validated in a single population	Validating** cohort study with good ¹ " " " reference standards; or CDR ¹ tested within one clinical centre	Prospective cohort study with good follow-up****	Analysis based on clinically sensible costs or alternatives; systematic review(s) of the evidence; and including multi-way sensitivity analyses
1c	All or none§	All or none case-series	Absolute SpPins and SnNouts ¹ " "	All or none case-series	Absolute better-value or worse-value analyses ¹ " " " "
2a	SR (with homogeneity*) of cohort studies	SR (with homogeneity*) of either retrospective cohort studies or untreated control groups in RCTs	SR (with homogeneity*) of Level >2 diagnostic studies	SR (with homogeneity*) of 2b and better studies	SR (with homogeneity*) of Level >2 economic studies

Grades of Recommendation

A	consistent level 1 studies
B	consistent level 2 or 3 studies or extrapolations from level 1 studies
C	level 4 studies or extrapolations from level 2 or 3 studies
D	level 5 evidence or troublingly inconsistent or inconclusive studies of any level

AAMPICOT

- Papers

- 文獻搜尋是否全面？是否對每一篇所錄的文獻進行嚴格評讀？
 - Yes
- 是否有publication bias(funnel plot)
 - Not mentioned
- 個別文獻取的樣本是否具代表性？其特性是否接近我的病人？
 - yes
- 個別文獻是怎樣的研究設計？
 - Not mentioned

AAMPICOT

- Intervention

- 各別文獻實驗組的處置是否描述清楚，並且是實際可行的？

- Yes

- Comparison

- 各別文獻對照組的處置是否描述清楚，並且是實際可行的？

- Yes

AAMPICOT

- Outcome

- 是否進行了Meta-analysis？結果如何？
 - Not mentioned
- 結果有無統計學上的意義？
 - Yes
- 結果有無臨床上的意義？
 - Yes
- 各文獻的結果是否homogeneous？
 - Yes

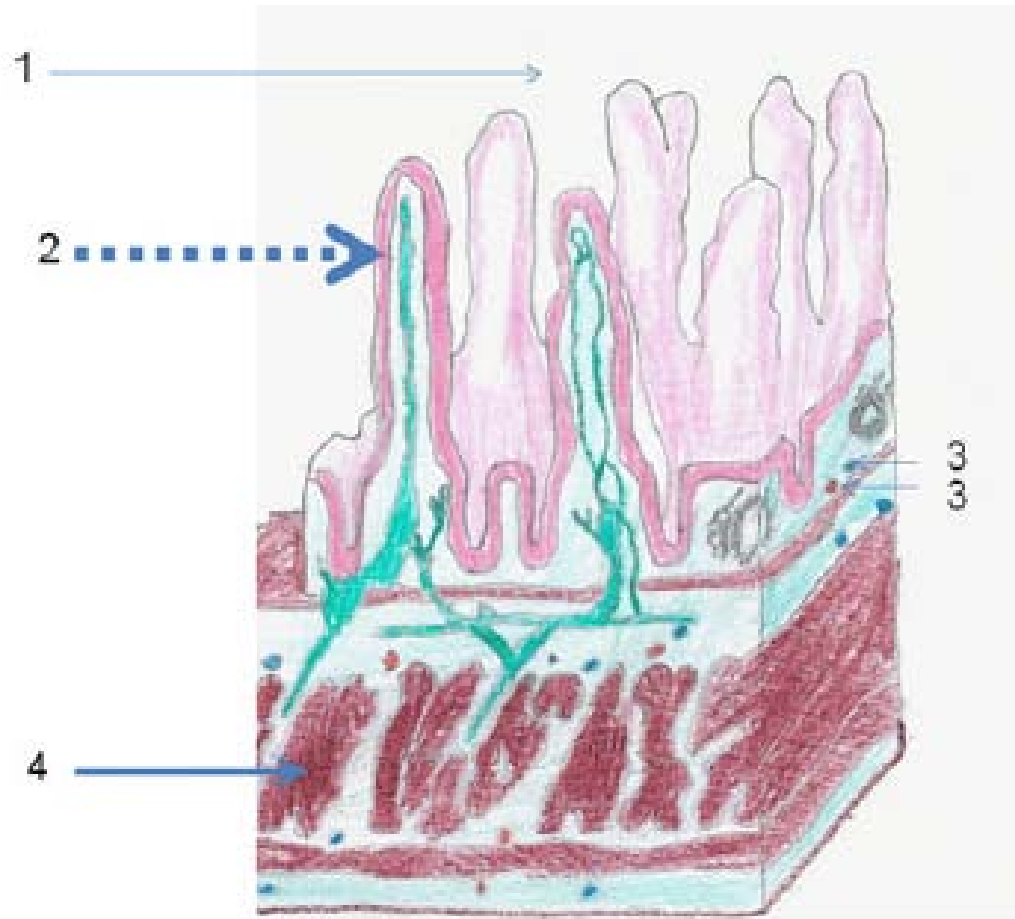
AAMPICOT

- Time
 - 測量結果的時間點是否合宜？
 - Yes
 - 追蹤時間是否夠長？
 - Yes
 - 文獻發表時間？
 - 2012

Background

- Provide current status on the search for an **accurate plasma biomarker** for acute mesenteric ischemia
- **1980.1~2011.8**, systemic review of **prospective** study
- Without a control group or a control group consisting of healthy individuals, or studies on intestinal reperfusion were excluded
- **20** animal & **12** human studies

- Studied plasma marker
 - Lactate(1)
 - Intestinal fatty acid binding protein (I-FABP,2)
 - Glutathione S-transferase(2)
 - D-dimer(3)
 - Creatine kinase(4)



Human clinical study

Table 2 Overview of studied plasma biomarkers for acute mesenteric ischemia in humans

First author	Publication year	Studied marker(s)	Patients in study	Control group	Study design	Sensitivity (%)	Specificity (%)
Lange [11]	1994	L-lactate	85	Acute abdomen	Prospective	100	42
Murray [28]	1994	D-lactate	31	Emergency laparotomy	Prospective	90	87
Kanda [30]	1996	I-FABP	61	Hospitalized patients with acute abdominal pain	Prospective	100	96
Delaney [26]	1999	α -Glutathione S-transferase	26	Suspected AMI	Prospective	100	86
Lieberman [31]	1997	I-FABP	22	SIRS	Prospective	92	0
Acosta [17]	2001	D-dimer	14	Suspected AMI	Prospective	100	38
Gearhart [27]	2003	α -Glutathione S-transferase	58	Suspected AMI	Prospective	72	77
		L-lactate				78	53
Acosta [10]	2004	D-dimer	101	Suspected AMI	Prospective	100	36
Block [18]	2008	D-dimer	71	Suspected AMI	Prospective	100	44
		LD isoenzymes				80 (LD2)	67 (LD2)
		ALP isoenzymes				80 (ALP liver)	64 (ALP liver)
Polk [60]	2008	Cobalt-albumin	26	Need of explorative laparotomy	Prospective	100	86
Chiu [19]	2009	D-dimer	67	Suspected AMI	Prospective	96	18
Thuijls [29]	2011	U-FABP	46	Suspected AMI	Prospective	90	89
		I-FABP				68	71

- Lactate

- reflects often late stage of the disease with extensive transmural intestinal infarction, body tissue hypoperfusion, anaerobic metabolism & death
- Liver clear large quantities of L-lactate from the porto-mesenteric circulation
- should not be used as a marker for acute mesenteric ischemia

- D-dimer

- high sensitivity, 96–100% for acute mesenteric ischemia
- early sensitive biomarker.
- However, specificity is low

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Plasma biomarkers in human studies

- Intestinal damage (starts from **intestinal mucosa**), markers leakage into blood from damaged enterocytes at the tip of intestinal villi early in the phase
- **I-FABP**
 - limited to the mature enterocytes of the small intestine, involved in the **uptake and use of fatty acids**
- **α -glutathione S transferase**
 - involved in the **detoxification**
 - not found to differ from the control group in study population

Conclusion and future perspectives

- **None** of the proposed plasma-derived tests for acute mesenteric ischemia has as yet entered routine clinical practice.

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Diagnosis

- **Lactate** : high sensitive but low specific.
(specificity ↑ significantly when conditions such as shock, diabetic ketoacidosis, renal and hepatic failure can be excluded)
- **Amylase** : ↑ in 50 %
- **Phosphate** : ↑ in 80 %
- **D-dimer** : normal → may help to exclude acute intestinal ischemia but elevated levels are less useful for its diagnosis.

Diagnosis

- α -GST :
 - 72% sensitivity and 77% specificity,
 - can not distinguish ischemia and infarction
 - The negative predictive value :
 - . 90 % when combined with serum lactate
 - . 100 %when combined with the WBC
- I-FABP :
 - high sensitivity

- A cobalt-albumin binding assay (CABA)
 - in 26 patients
 - sensitivity:100% and specificity 86%
 - Ischemia-modified albumin (IMA)
 - 7 patients significant ↑ compared with healthy controls.
- Larger studies will be necessary to validate these findings.

Conclusion

- Laboratory studies are **nonspecific**, need more larger studies
- **Mesenteric angiography** remains the gold standard diagnostic study for acute arterial ischemia.
- In patients for whom a high clinical suspicion of mesenteric ischemia is present, we suggest **immediate angiography** rather than other imaging modalities (Grade 2B).

Apply

結合醫學倫理方法

將study的結果應用在病人身上

醫療現況

開完刀後，病人轉到SICU後續
照護，但因multiple organ
failure, 3/18 EKG show VT,
PEA 家屬決定AAD

病人意願

無法詢問

生活品質

沒有影響

社會脈絡

台灣醫病關係緊張，不只病人不
信任醫師，醫師也擔心訴訟纏身，
目前尚無建議的抽血項目，建議還
是以影像學檢查為gold standard。

Audit（自我評估）

在「提出臨床問題」方面的自我評估

- 我提出的問題是否具有臨床重要性？
 - 是, 早期診斷acute mesenteric ischemia 對預後有顯著影響
- 我是否明確的陳述了我的問題？
 - 我的foreground question 是否可以清楚的寫成PICO？
 - 可
 - 我的background question是否包括what, when, how, who等字根？
 - 有，但未能全括
- 我是否清楚的知道自己問題的定位？
 - 知道，屬於診斷範疇
- 對於無法立刻回答的問題，我是否有任何方式將問題紀錄起來以備將來有空時再找答案？
 - 有

在「搜尋最佳證據」方面的自我評估

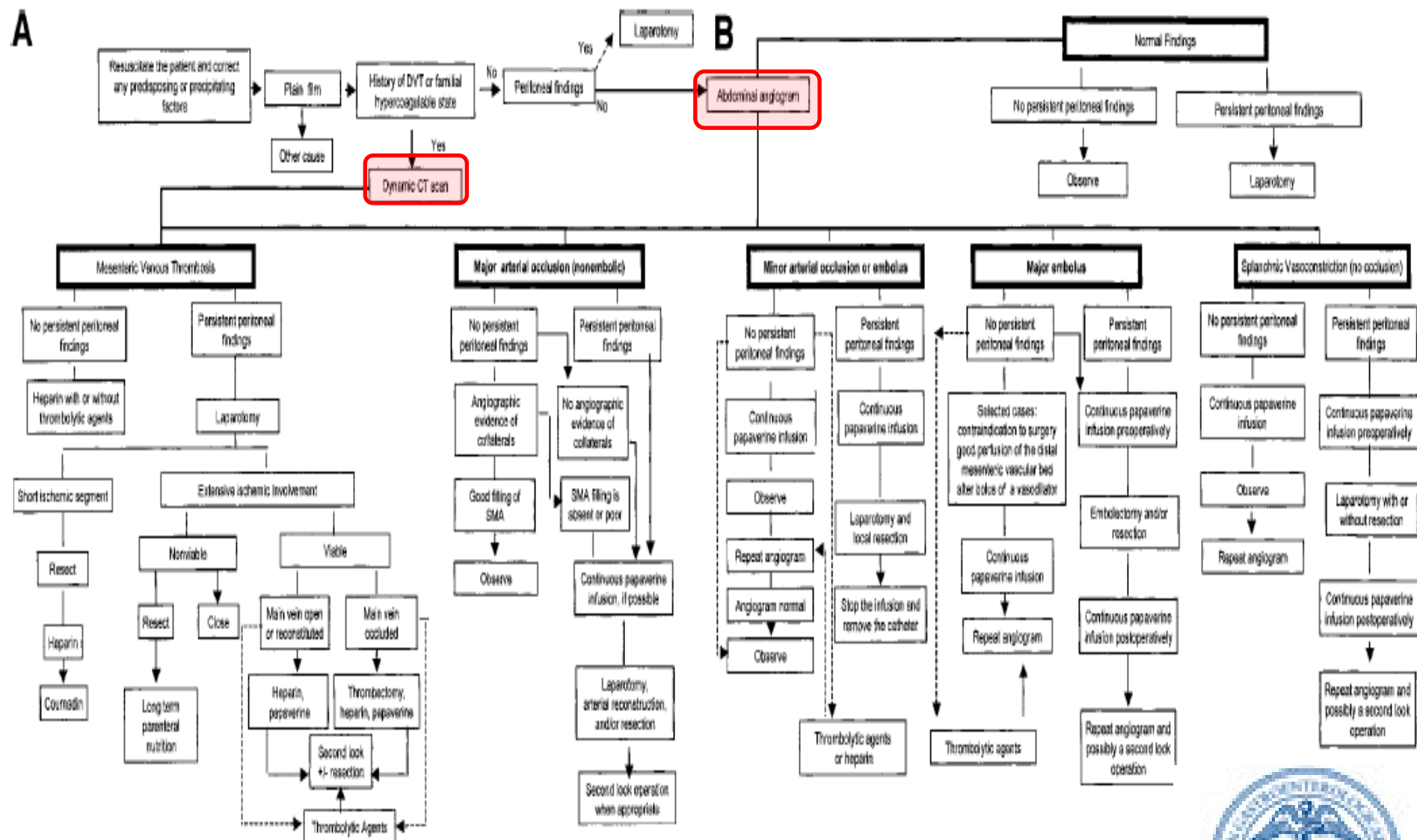
- 我是否已盡全力搜尋？
 - 是
- 我是否知道我的問題的最佳證據來源？
 - 是
- 我是否從大量的資料庫來搜尋答案？
 - 是
- 我工作環境的軟硬體設備是否能支援我在遇到問題時進行立即的搜尋？
 - 是，這次沒有碰到沒買到版權的問題
- 我是否在搜尋上愈來愈熟練了？
 - 是
- 我會使用「斷字」、布林邏輯、同義詞、MeSH term，限制 (limiters) 等方法來搜尋？
 - 部份會
- 我的搜尋比起圖書館人員或其他對於提供病人最新最好醫療有熱情的同事如何？
 - 普通

關於「嚴格評讀文獻」方面的自我評估

- 我是否盡全力做評讀了？
 - 盡力而為
- 我是否了解worksheet每一項的意義？
 - 部份瞭解
- 評讀後，我是否做出了結論？
 - 是, 目前尚無單一抽血數據可以獨立診斷出acute mesenteric ischemia, 雖有幾個建議Biomarkers, 但多用在排除AMI, 故目前還是follow AGA 2000年發表的guideline, 以 Mesenteric angiography 為診斷 gold standard。

關於「應用到病人身上」的自我評估

- 我是否將搜尋到的最佳證據應用到我的臨床工作中？
 - 可
- 我是否能將搜尋到的結論用病人聽得懂的方式解釋給病人聽？
 - 可
- 當搜尋到的最佳證據與實際臨床作為不同時，我如何解釋？
 - 雖然guideline 以Mesenteric angiography 為診斷 gold standard，但在臨床上多看到用CT+，考量經濟面與人力，是否CT with contrast 合併 lab data 可以取代angiography？下次再來EBM 一下！

A

Brandt L. American Gastroenterological Association Medical Position Statement: Guidelines on Intestinal Ischemia. *Gastroenterology* 2000;118:951-953.



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Algorithm 1. (A and B) Diagnosis and treatment of of intestinal ischemia. Solid lines indicate accepted management plan; dashed lines indicate alternate management plan.

改變「醫療行為」的自我評估

- 當最佳證據顯示目前臨床策略需改變時，
我是否遭遇任何阻止改變的阻力？
 - 沒有，目前還沒有改變臨床策略
- 我是否因此搜尋結果而改變了原來的治療
策略？做了那些改變？
 - 沒有改變

效率評估

- 這篇報告，我總共花了多少時間？
 - 好幾天
- 我是否覺得這個進行實證醫學的過程是值得的？
 - 值得，因為這個題目實用度高
- 我還有那些問題或建議？
 - 評讀paper的方法不甚熟練

Thanks a lot !!!