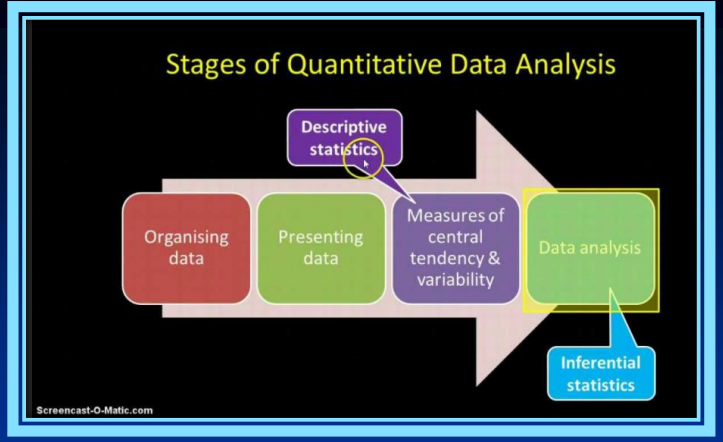
生病的故事



NP CME, PGY, Medical students (2025)

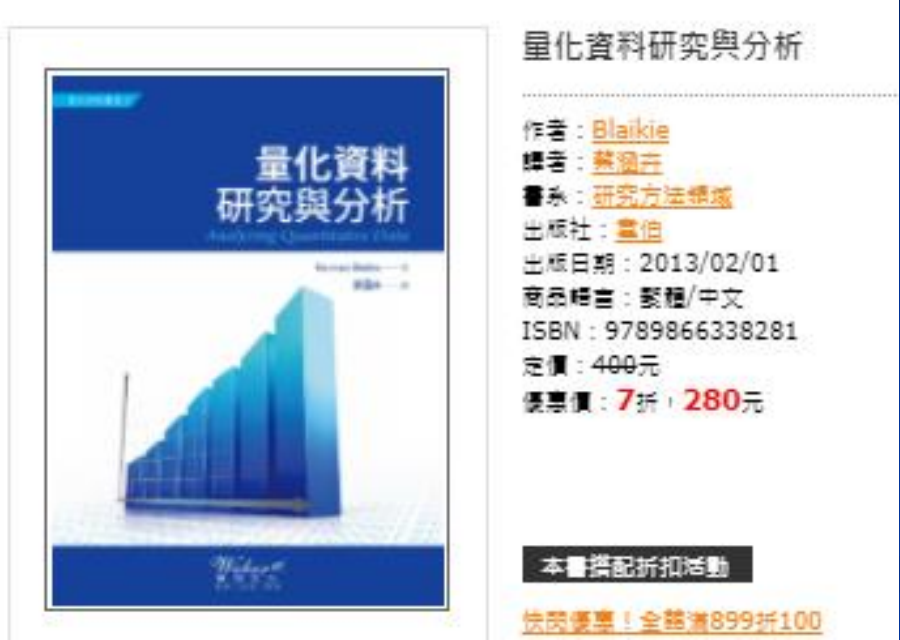
診治病情要有量化的觀念

Quantization of clinical information

Cheng-Yi WANG

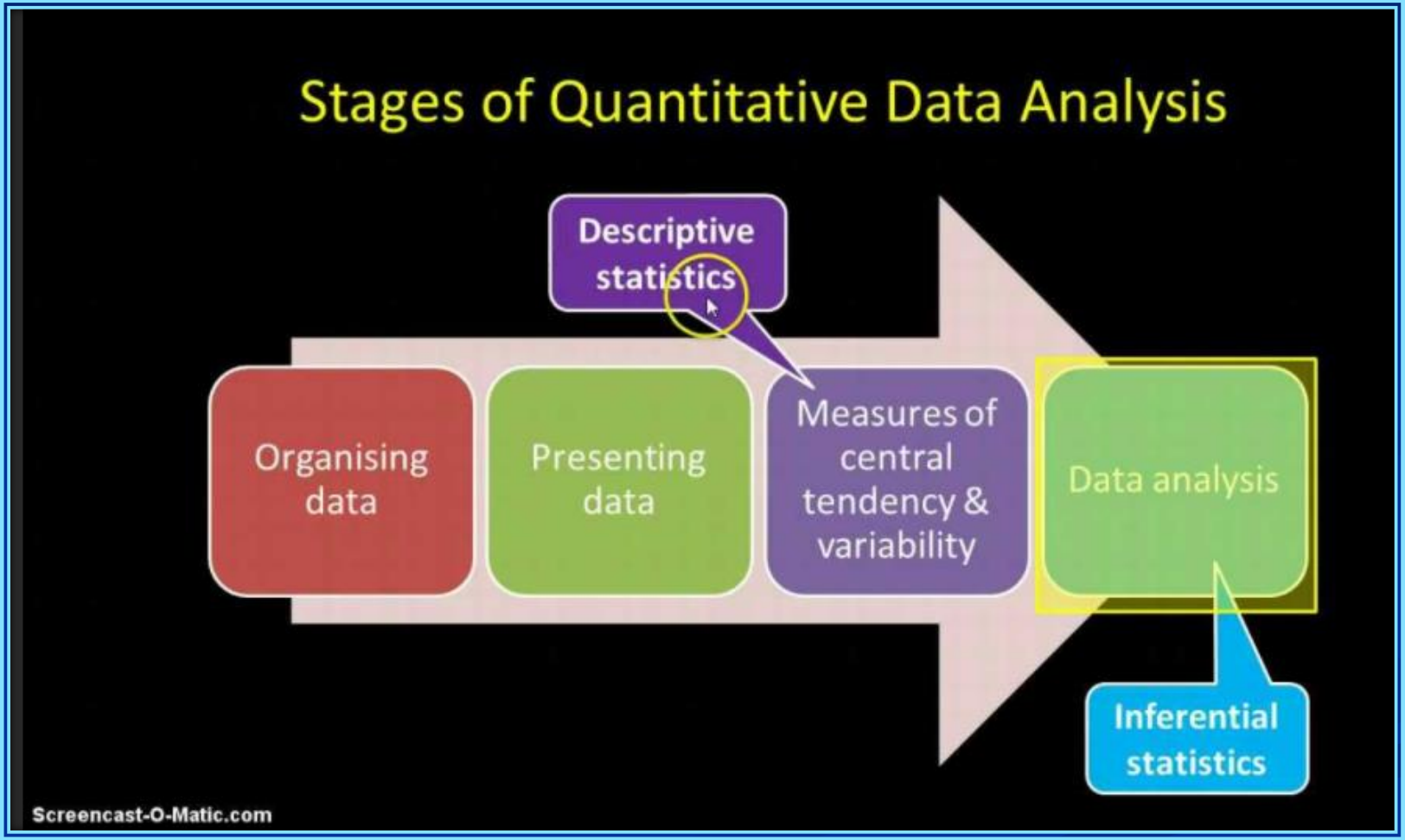
2025.11.07.

Quantitative analysis of data



量化是為了敘明輕重,便於比較、特別是臨床症象有無變動.治療有無改善.
症狀感覺都很主觀、加以量化後就可以客觀化.

我們要有數據(data)量化的觀念



Inferential statistics 的中文是推論統計或推論統計學。 它是一種統計學分支，利用從樣本資料中蒐集到的資訊，來推斷和預測整個母體（總體）的特徵。

症狀或感覺有可以量化嗎,

- 如何把主觀感受轉化為可操作、可比較的量化指標。答案是：可以，而且已經有很多成熟又可改造的架構可以應用

1. Likert量表（李克特量表）

- 結構：通常是 0–4 或 1–5 分制，例如「完全沒有痛」到「非常痛」。
- 用途：疼痛、焦慮、疲勞、情緒、滿意度等。
- 優點：簡單、易懂、可視覺化（例如用表情符號、顏色、貼紙）。

2. 視覺類比量表（VAS）

- 結構：一條線，從「沒有症狀」到「最嚴重症狀」，病人畫一條線表示程度。
- 用途：疼痛、呼吸困難、癢感等。
- 優點：連續性高，適合精細變化。

3. 症狀頻率與干擾程度

- 結構：例如「一週出現幾次？」「是否影響日常活動？」
- 用途：慢性病、精神症狀、長照評估。
- 優點：可結合行為紀錄與功能評估。

4. 功能性量表

- 結構：例如Barthel Index、Katz ADL、Lawton IADL。
- 用途：長照、復健、老年照護。
- 優點：與生活能力直接相關，適合設計挑戰卡或自我完成地圖。

5. 病程指標與嚴重度分級

- 結構：例如急性胰臟炎的Ranson score、COVID-19的WHO臨床進展量表。
- 用途：急性病、災難應變、病程追蹤。
- 優點：可設計為參與式病程卡，讓病人與照顧者共同追蹤。

🥇 最適合一般人的量化方式

1. 表情符號式 Likert量表（Emoji Likert Scale）

- ✅ **結構簡單**：例如 0–4 分，搭配表情符號（😄🙂😐😟😢）。
- ✅ **直覺好懂**：不需文字解釋，老人、小孩都能理解。
- ✅ **可視覺化**：可做成貼紙、卡片、APP按鈕。
- ✅ **應用範圍廣**：疼痛、情緒、疲勞、壓力、滿意度。

> 適合用在長照挑戰卡、災難壓力自評、兒童情緒教學、病程追蹤貼紙等

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2. 顏色階梯式 VAS（Color Gradient Visual Analog Scale）

- ✅ **結構連續**：從綠色（無症狀）漸變到紅色（最嚴重）。
- ✅ **視覺辨識強**：不需數字，用顏色就能表達程度。
- ✅ **可搭配身體部位圖**：例如「哪裡痛？痛到什麼程度？」
- ✅ **適合自我完成**：可做成每日記錄表或APP滑動條。

> 適合用在病程指標卡、災難身體反應自評、長照疼痛追蹤。

3. 任務完成式量表（Task-Based Rating）

- ✅ **結構行為導向**：例如「今天是否能自己穿衣？」「是否完成深呼吸練習？」
- ✅ **量化功能與參與度**：不只是感覺，也量化行動。
- ✅ **適合挑戰卡設計**：可結合貼紙、獎勵、進度條。
- ✅ **鼓勵正向參與**：讓使用者感覺有成就感。

> 適合用在長照活動卡、災難應變訓練、兒童認知挑戰模組。

不是用數字表示而是以完成工作任務表示

Descriptive statistics

- Descriptive statistics serve a simple but critically important role in your research – to describe your data set (who would have thought?). In other words, they help you **understand the details of your sample** (the small slice of the population). Unlike inferential statistics , descriptive statistics are not aiming to make inferences about the entire population – they're just interested in the details of your specific sample.
- When you're writing up your analysis chapter, descriptive statistics are the **first set of stats** you'll cover, before moving on to inferential statistics. However, depending on your research objectives and questions, they may be the only type of statistics you use. Whatever the case, they're essential.
- **"Descriptive statistics" 的中文是「敘述統計」或「描述統計」. 這是一種統計學方法，用於整理、總結和呈現數據的基本情況，以便更好地理解數據的特徵，例如透過平均數、中位數或圖表來描述數據集。**

Descriptive statistics of your data

- **Mean** – this is simply the mathematical average of a range of numbers.
- **Median** – this is the middle point of a range of numbers (if those numbers were arranged from low to high).
- **Standard deviation** and **variance** – these indicate how dispersed a range of numbers are. In other words, how close (or far) all the numbers are to (or from) the average.
- **Skewness** – this indicates how symmetrical a range of numbers is. In other words, do they tend cluster into a smooth bell curve shape in the middle (this is called a "normal distribution"), or do they skew to the left or right.

- Mean,
- Median
- SD
- Normal distribution or not?

Data set

Person	Weight (kg)
1	70
2	55
3	90
4	75
5	66
6	73
7	80
8	58
9	76
10	81

Descriptive statistics

Statistic	Result	Formula
Mean (average)	72.4	=AVERAGE
Median	74	=MEDIAN
Standard Deviation	10.637	=STDEV.S
Variance	113.15556	=VAR.S
Skewness	-0.223701	=SKEW

Inferential statistics

- The descriptive statistics are all about the details of your specific data set (your sample), inferential statistics aim to **make inferences about the population**. In other words, inferential statistics aims to make predictions about what you'd find in the full population. This could include predictions about:
- **Differences between groups** – for example, height differences between children grouped by their favourite meal.

「Inferential statistics（推論統計）」的核心概念是：
不是從「數字本身」去推論，而是從「樣本的統計結果」去推論母體

推論統計的本質是「從樣本推論母體」

🧩 舉例說明

- **描述統計**：這 100 位長照中心住民的平均年齡是 78 歲。
- **推論統計**：根據這 100 位住民的資料，我們推論全台長照住民的平均年齡可能落在 77–79 歲之間，並進行假設檢定來判斷是否與其他地區有顯著差異。

- @ 收集資料-→分類-
- -→個別敘述及分析傾向 (Changes) 及意義
- Variation/mean and average,

- → descriptive statistics.敘述結果

- **@@ presentation of data**
- **single and combined,**
- **Initial → Change**
- **Significance and trends**

→Inferential statistics 推理,判斷。更具前瞻意義-→決策

Inferential statistics

- The methods/techniques
- Some common inferential statistical techniques include:
- **T-Tests** – this compares the averages of two groups of data to assess whether they're **significantly different**. In other words, do they have significantly different means (averages), standard deviations and skewness.
- **ANOVAs** – this is similar to a T-test, but it allows you to analyse multiple groups, not just two groups.
- **Correlations** – this assesses the relationship between two variables. In other words, if one variable goes up, does the other variable also go up, down, or stay the same.
- **Regressions** – this is similar to correlation, but it goes a step further to **understand cause and effect between variables**, not just whether they move together. In other words, does the one variable actually cause the other one to move, or do they just happen to move together naturally thanks to another force.

🧠 關鍵差異整理

項目	Correlation	Regression
關注點	關係強度與方向	預測與因果推論
是否有方向性	無（X與Y可互換）	有（X影響Y）
是否可預測	否	是
是否可加入多變數	否	是
是否可進行假設檢定	有限	完整

Correlation : 衡量兩個變數之間的線性關係強度與方向。
完全正相關, 完全負相關. 不涉及因果或預測，只是描述關係。

Regression 預測一個變數（應變數）如何受另一個變數（自變數）影響。
Ex. 預測一個變數 y（應變數）如何受另一個變數 x（自變數）影響。可以說 X 對 Y 有顯著影響？」

All information :
不明確的概念要求變得更加具體

- 生活中人與人之間常用的辭:
- 「長短」、「大小」、「遲早」以及「多寡」等都屬不明確的概念.
- 不明確的概念.要變得更加具體,即應有量化的敘述
- 有時候不一定有,就是有. 手機的電剩下10 %, 它就不再能拍攝像片了。

生活上量化的觀念是存在的

- 我的經驗:30 % 以下就要快點充電了.

@ 遲到多久才算遲到? 每個人接受度不同, 差1-2分或可以原諒、>5 分該受譴責吧.
網路上的答案是:
答案是 9 分 23 秒。

手機電量剩多少再充電最好??

- 90%不知道

- 一般來說，一個幾乎耗盡電量的電池，就如同一個被困在沙漠中幾乎脫水而亡的人，一旦讓他接觸到水源，就會以最快的速度，汲取最多的水分。同理，在電池幾乎耗光電量時，充電可以達到更好的效率。所以在電池還剩10%的電量時充電，有可能將會比剩50%時充電，接收到更高的電流。可是，如果真如上面所說，那你的手機電池就遭殃了！
- 在大家的觀念裡，電池用到20%以下再充電會比較好，在鎳電池時代確實如此，可是到了現在的鋰電池，真讓手機電量降到20%，甚至自動關機，對電池的損傷非常大，會造成充電變慢、電池不堪用、甚至電池壽命降低等問題。另外，如果手機用到自動關機，鋰電池會因為過度放電，導致內部電壓過低，容易出現無法開機和充電的情況。

盡可能讓電池保持50%以上的電量，一旦低於這個電量，就該充電了。現代智慧型手機通常都是「鋰離子電池」，**電量維持在30%至80%最安全，電充得太飽或電量太低才充電，都會傷害電池。**

臨床上我們天天面對一些事實

- Qualitative ---我心情不好、不想吃
- ------沒睡好,人很累
- -----我肚子疼痛
- 以為只是一種情勢、現象, 無法量化
  事實不然,仍可以量化.

Likert量表（Emoji Likert Scale）
表情符號

心情不好:@極端嚴重,很想死掉,想suicide.(++++)

@@很嚴重,很不好,茶不思。飯不想.但還可自制,不會想死 (+++)

@@@不好,比平常差 (++)

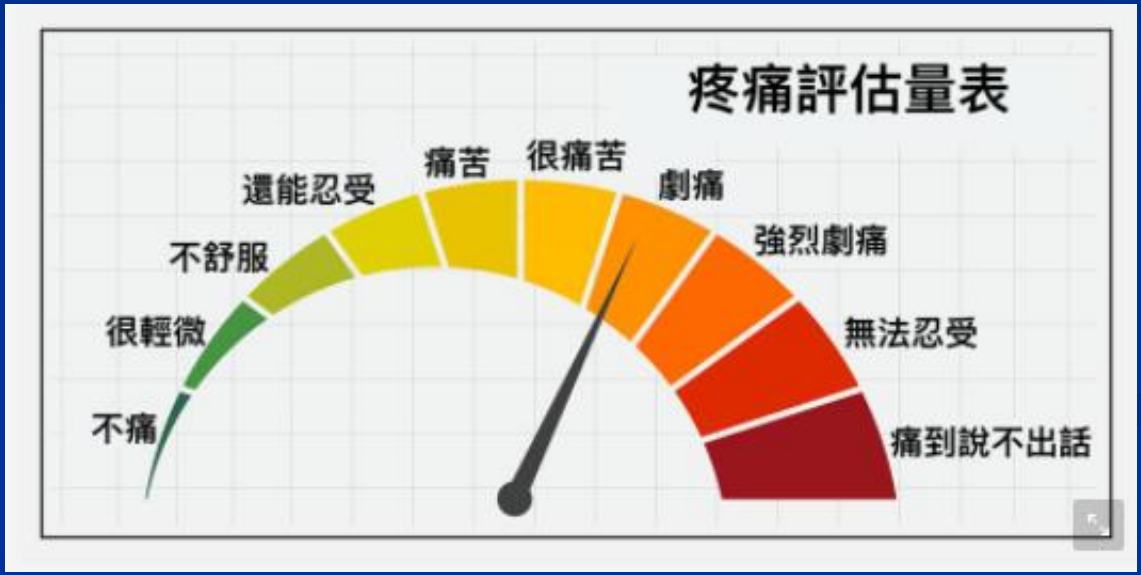
@@@@有一點點影響 (+)

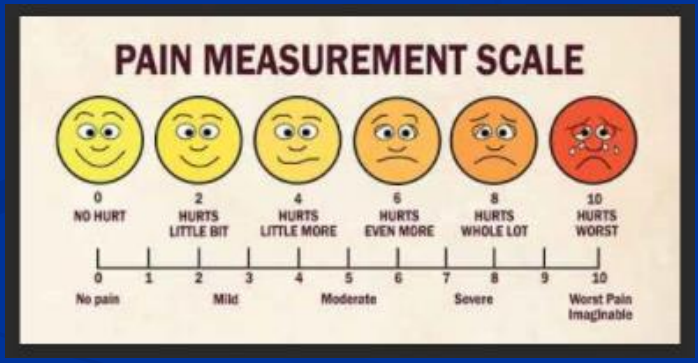
@@@@@心情不錯-------(-)

五個等級

疼痛的量表：ＮＲＳ

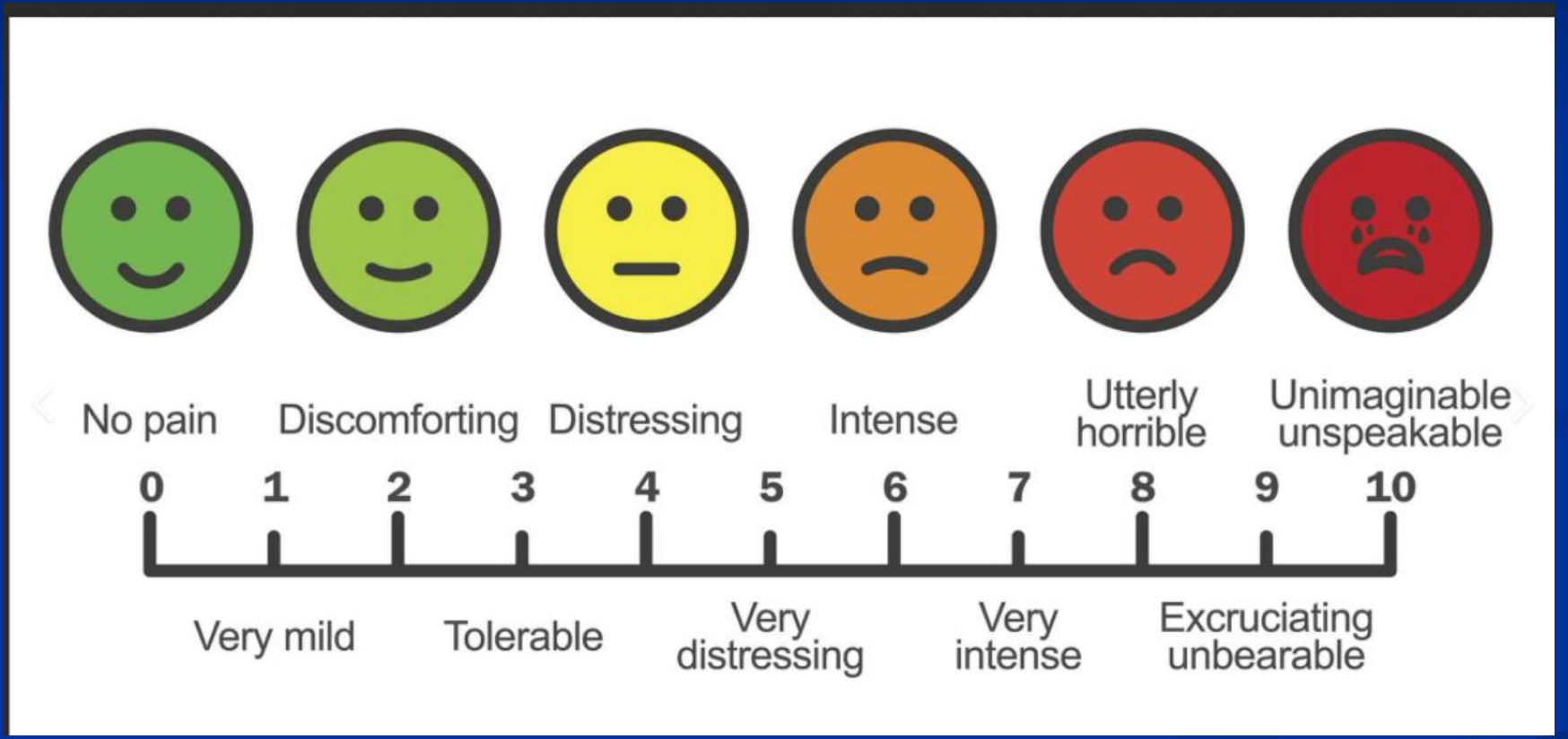
- 我胸部疼痛 and abdominal pain,





數字評定量表(Numerical rating scale，簡稱NRS)
一般用於年紀超過9歲者，因為受評估的人需要能表達出疼痛的程度，其量表通常以0~5，或0~10為標準，0為沒有疼痛，10為劇烈疼痛，評估時間則是治療前後都有可能。

嚴格說:五等級比較實在



No **Mild** moderate and tolerable **distressing** **Intense** **very severe**, unbearable

不想吃-anorexia

- 胃口不佳的程度:
- ++++完全不吃
- +++, 只吃一兩口就放下筷子,吃不到半碗飯
- ++, 約吃比平常少一半, 但還有半碗飯
- +, 比平常少一點,但仍吃一碗飯以上
- - 飯量與平常相同,完全相同,
- 胃口不佳的結果: 與期間有關,-→BW變動,
- 結果:Emaciation. BW changes可以斤斤計較

一般成人肥胖定義

成人肥胖定義	身體質量指數（BMI）(kg/m2)	腰圍（cm）
體重過輕	BMI＜18.5	
正常範圍	18.5≦BMI＜24	
體重過重	過重：24≦BMI＜27 輕度肥胖：27≦BMI＜30 中度肥胖：30≦BMI＜35 重度肥胖：BMI≧35	男性：≧90cm 女性：≧80cm

BW changes:

體重過輕 (<18.5)

肥胖 (>27)

重度肥胖 (>40)

肥胖分級與健康風險

BMI 值範圍	分類	健康風險
< 18.5	體重過輕	可能營養不良，免疫力下降
18.5–23.9	健康體重	最理想的範圍
24–26.9	體重過重	健康風險開始上升
27–29.9	第一級肥胖	心血管疾病風險升高
30–34.9	第二級肥胖	需積極控制體重
35–39.9	第三級肥胖	高度風險，可能需醫療介入
≥ 40	重度肥胖	極高風險，常需手術或專業治療

BMI 超過 45 已遠超「重度肥胖」門檻，代表個人可能面臨多重代謝疾病、心血管疾病、糖尿病、睡眠呼吸中止症等風險。 [1] [2]

從onset time 算起可知多久(量)

- 1. **Time of onset**---Clinical presentation-(寫下日期)
- → Health care看診日:
- 時間越久,病情越明顯,越容易診斷,但預後也最差,
- 2.病情； symptoms and signs.
- 所有的clinical information 都要有症狀、症象,檢查結果 data 如果都量化**+時間**的的面向可知道
- **Duration,可比較 changes ,**
- **可判定好壞、**
- **可決定要繼續還是改變**

2021.02.01 case conference
xx 醫學中心

Где находится Ключевская Сопка

Содержание статьи: [Показать]

Ключевская Сопка – действующий вулкан на востоке п-ва Камчатки. Административная принадлежность: Усть-Камчатский район, Камчатский край, Российская Федерация. Находится в 60 км от тихоокеанского берега. Горная система – Восточный хребет. Относится к типу стратовулканов.

Является одним из самых активных вулканов в мире. За последние, примерно 300 лет сильных извержений было больше 50-ти. Только в XX столетии вулкан проявлял сильную активность 15 раз!

克柳切夫斯卡亞索普卡火山是堪察加東部的活火山。行政隸屬關係：俄羅斯聯邦堪察加邊疆區烏斯圖-堪察加地區。距離太平洋海岸60公里。山脈系統是東脊。它屬於地拉圖蘭類型。

它是世界上最活躍的火山之一。在過去大約300年中，有50多起強烈噴發。僅在20世紀，火山就表現出了15次強烈的活動！

- 完整的爆發出VS的”醜惡”: 完全不理不睬病人、完全不理會學生,他只顧自己,作自己的事,他可以在自己的領域上得100分、但臨床教學0分

Case conference at GI section in a Medical Center.

- 男性.50歲 Admitted in June, 2020 for treatment of HCC, small (< 2 cm.) complicated with cirrhosis and massive ascites(?) TAE was done.
- An episode of delium(Delirium) was noted in June 2020.
- He was admitted again due to delium(delirium) for one week.
- NH3(Blood ammonia) was 333 at ER. Icteric sclera was found too and serum bilirubin was 2.0.
- Lung nodule(s)(one or more?) was found during admission. Biopsy was carried out and frozen section showed adenocarcinoma in Jan. 2021. He was discharged next day.
- Final Diagnosis (on discharge) showed pneumonia and cirrhosis
- NO AFP, NO CEA, 聽完這個case我們都知道問題很多

荒腔走板到極點

- No problem list
- No discharge plan
- No accurate suggestion to the patient and the family on discharge.
- **VS 完全不理不睬病人、完全不理會學生,**
- **-------未盡到指導之責任,**
- 放牛班?

大多數是研究型的VS

這個案例有好多問題-1

- CC : Delium for one week.→
- **Delium-→ Delirium**, (譫忘)這是一個比較生澀的名詞是一個病名.
- 主訴要敘述症狀(病人說的或家屬發現的)而不要直接用病名.
- **Active disease要敘述症狀,{這是Major problem(s).} + Duration of symptoms.(or time of onset)**

Delirium 應該不是病人用語)

- 譫妄是綜合醫院老年病患精神科照會中，最為常見的**診斷**，其他各科醫療人員常用的其他名詞急性精神病狀態（acute psychosis）、急性混亂狀態（acute confusional state)加護病房症候群（ICU syndrome，or ICU psychosis）、代謝性腦部疾病（metabolic encephalopathy）、中毒性腦部疾病（toxic encephalopathy）、急性腦衰竭（acute brain failure）等，各種不一致的名詞。
- 譫妄通常是急性發作，易被歸因為是病患不合作的行為，情緒不穩等；而被過度輕忽。

診斷: A.意識障礙（意即對於周遭環境察覺的程度下降）

- ，致使注意力不集中、維持與轉移能力下降。

B.認知變化（例如記憶缺損、定向感異常、語言障礙）

- 和知覺障礙，但不是原先既有或進行中癡呆症所致。

C.障礙發生的時間很短，且在**一天之內呈現波動**之趨勢。

D.從病史、理學檢查、及實驗室檢查結果，障礙的發生係

- 由於一般身體問題所直接造成之生理後遺症所致。

Delirium-clinical pictures

A.認知功能障礙（Impairment of cognitive function）

- 蚤 定向力障礙（disorientation）： 先搞不清楚時間再來是地點接著是人，time → place → person
- 蚤 恢復（recovery）： 先認得人，再來才是地點跟時間，person → place → time

B. 近期記憶（immediate and recent memory）容易忘，久遠記憶（remote memory）仍記得

- 蚤 由於症狀是波動性的（**fluctuations**），所以需要詢問家屬和看護，以得知不同時間的病情變化
- 蚤 通常是晚上較嚴重，所以又稱做日落症候群（**Sundowning**）
- 蚤 病人有時會短暫的恢復正常（**lucidity**），不過大部分時間還是有認知障礙。等病人完全康復後，會有**lucidity** 時的記憶，不過由於**lucidity** 是短暫且間斷的出現，所以病人會有點狀記憶/島狀記憶的情形發生

C. 思考混亂：慢慢離題（tangentiality）、答非所問（incoherence）

D. 錯覺（Perceptual disturbance）：幻覺（illusion、hallucination）

E. 精神運動狀態（Psychomotor）：

- 蚤 **hyperactivity** 佔了22%
- 蚤 **hypoactivity** 比較被難察覺，像是一直在睡覺，都不說話，可是如果檢查他的認知功能，會有上述的症狀
- 蚤 混合型

F. 睡眠周期（sleep cycle）混亂：白天嗜睡（daytime drowsiness），晚上睡得支離破碎（fragmented sleep）

G. 情緒（mood）：容易動怒（irritability）、煩躁不安（dysphoria）、焦慮（anxiety）、心情愉快（euphoria）

H. 神經學的功能（neurological function）：自主神經過度活化（autonomic hyperactivity or instability）、肌痙攣反射（myoclernic jerk）、構音困難（dysarthria），病人需做NE 或PE

I. EEG：病人呈現慢波，正常是睡覺時才會呈現慢波

Delirium是病名, 病人不會用的專有名詞

- 譫妄（拉丁語：delirium）神智不清；語無倫次, 是一種急性發作的症候群，
- 特徵主要為意識清醒程度降低、
- 注意力變差、失去定向感、
- 情緒激動或呆滯、睡眠-清醒週期混亂、有時清醒有時又變得昏睡，
- 常常伴隨著妄想（例如相信有人要害他）、幻覺（例如看到不存在的東西，過世的親友）等；病情起伏不定，時好時壞。

修改

- CC: 表情呆,神智不清；語無倫次,昏睡,常常伴有妄想,幻覺.**容易動怒,又煩躁不安,約有一星期了. First attack in June, 2020. Recurred in the recent one week.(Jan. 2021.)**
- **(not delirium for one week)**
- 用病家的語言,而不是專家的語言 **(**不用術語**)**

這個案例有好多問題-2.

- **2. Past history沒說清楚.**
- 1. First hospitalization, tumor <2.0 cm,.如何診斷, 又為何選擇
- TAE. 有無病理之証明、
- 2. Cirrhosis 的原因、HBV or alcoholic ?
- 3. cirrhosis, combined with massive ascites?應列出LFT.
- 4. Present physical findings 又完全沒有Ascites. 是真的嗎.
- 5. 有pancreatitis的history, 原因是什麼 ?alcoholic ?
- 6.喝酒史有25年、**一天一兩罐啤酒**(380-760ml, 17-34 gm/day)会形成alcoholic cirrhosis and alcoholic pancreatitis?
- **是不是一天不只一兩罐啤酒**. 喝酒的量與形成alcoholic diseases密切相關,**一定要認真問**,追問下去。

每天喝酒的量, 這樣的量喝多久,

- 男性每天攝入純酒精超過 25 克、女性超過 15 克，長期下來(8到10年)就可能傷肝，導致酒精性脂肪肝、肝炎甚至肝硬化。

酒精攝取量與肝臟風險

酒類	酒精濃度	男性建議每日上限	女性建議每日上限	備註
白酒（50度）	50%	約 50 ml	約 30 ml	超過即為過量
啤酒（4%）	4%	約 500 ml	約 250 ml	易忽略的高量
紅酒（12%）	12%	約 150 ml	約 100 ml	適量仍需節制

計算公式：

酒精量（克）= 飲用量（毫升）× 酒精濃度 × 0.8

例如：喝 100 ml 的 45 度白酒 → 100 × 0.45 × 0.8 = 36 克酒精 → 已超過男性建議上限。

這個案例有好多問題-3.

- 3. B肝的病史要說清楚,國中的時候有抗原、
- 　現在有抗体,指的是什麼?
- 國中有HBsAg (+).現在有Anti HBs(+), 還是Anti HBc (+)
- 至少現階段HBV Markers要報告.

- 小心要說明那一種抗体.

Antibody response

Int J Infect Dis. 2020 Dec;101:220-225. doi: 10.1016/j.ijid.2020.09.1484. Epub 2020 Oct 5.

Antibody responses after COVID-19 infection in patients who are mildly symptomatic or asymptomatic in Bangladesh

Tahmina Shirin [1], Taufiqur Rahman Bhuiyan [2], Richelle C Charles [3], Shaheena Amin [2], Imran Bhuiyan [4], Zannat Kawser [4], Asifuzaman Rahat [4], Ahmed Nawsher Alam [1], Sharmin Sultana [1], Md Abdul Aleem [2], Manjur Hossain Khan [1], Samsad Rabbani Khan [1], Regina C LaRocque [3], Stephen B Calderwood [3], Edward T Ryan [5], Damien M Slater [6], Sayera Banu [2], John Clemens [2], Jason B Harris [3], Meerjady Sabrina Flora [1], Firdausi Qadri [7]

Affiliations – collapse

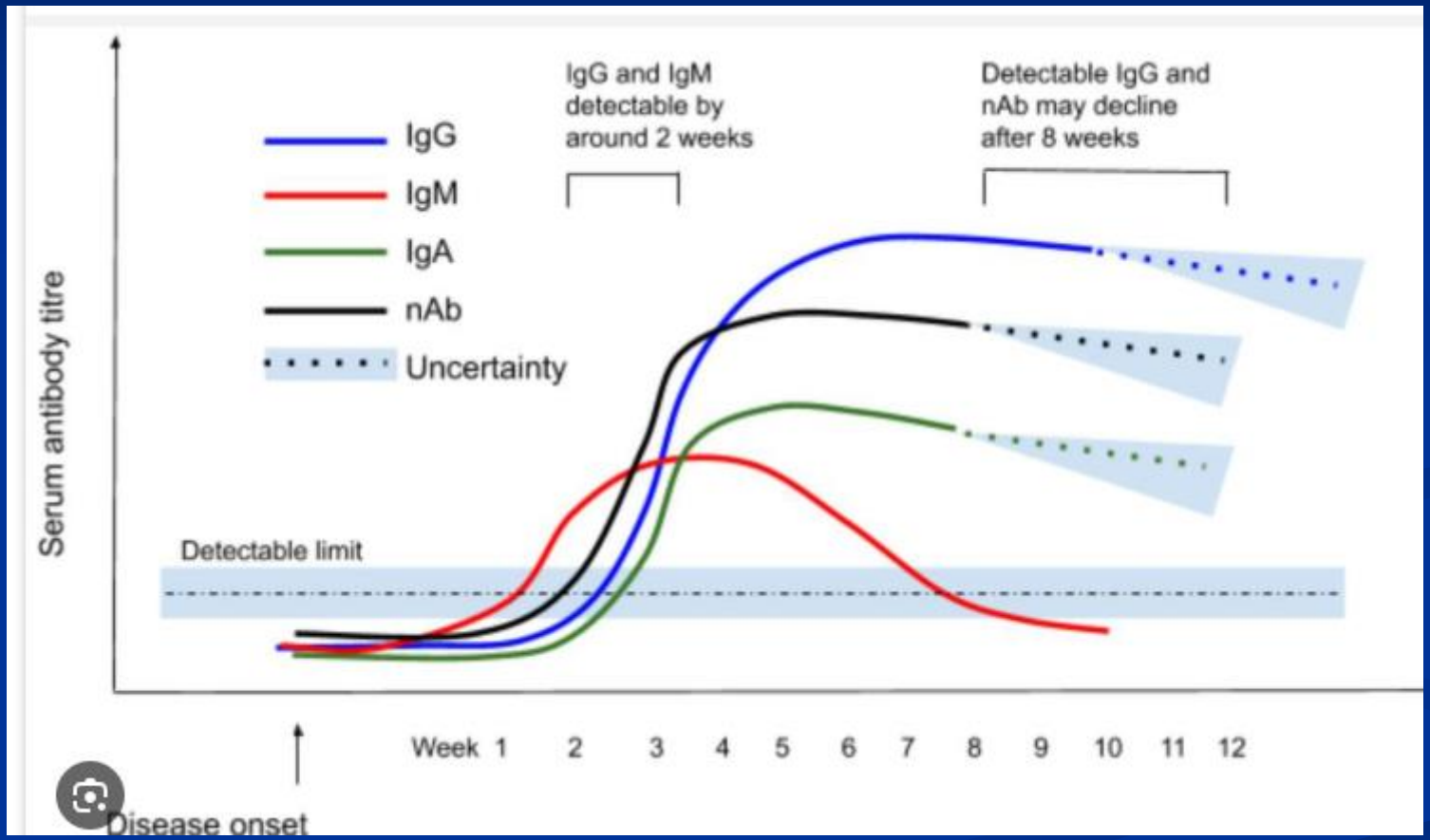
Affiliations

1 Institute of Epidemiology, Disease Control and Research, Dhaka, Bangladesh.

We measured IgG, IgM, and IgA to the receptor-binding domain of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) by using enzyme-linked immunosorbent assay in mildly symptomatic (n = 108) and asymptomatic (n = 63) on days 1, 7, 14, and 30 following RT-PCR confirmation in Bangladesh and when compared with pre-pandemic samples, including healthy controls (n = 73) and individuals infected with other viruses

- **Results:** Mildly symptomatic individuals developed IgM and IgA responses by day 14 in 72% and 83% of individuals, respectively, while **95% of individuals developed IgG response, and rose to 100% by day 30**. In contrast, individuals infected with SARS-CoV-2 but who remained asymptomatic developed antibody responses significantly less frequently, with only 20% positive for IgA and 22% positive for IgM by day 14, and 45% positive for IgG by day 30 after infection.

Conclusions: These results confirm immune responses are generated following COVID-19 who develop mildly symptomatic illness. However, those with asymptomatic infection do not respond or have lower antibody levels. These results will impact modeling needed for determining herd immunity generated by natural infection or vaccination.



Antibody response to SARS-CoV-2 infection in humans: a systematic review
Nathan Post et al ： *PLOS ONE* doi: 10.1371/journal.pone.0244126 （2020）

October 20, 2020 Edition 2020-10-20

COVID-19 Science Update

From the Office of the Chief Medical Officer, CDC COVID-19 Response, and the CDC Library, Atlanta, GA.
Intended for use by public health professionals responding to the COVID-19 pandemic.

*** Available on-line at https://www.cdc.gov/library/covid19 ***

- IgG antibodies to SARS-CoV-2 RBD were strongly correlated with neutralizing antibody titers (r = 0.87) (Figure).

RBD: receptor-binding domain

- Neutralizing antibody titers demonstrated little or no decrease at **75 days post-symptom onset.**

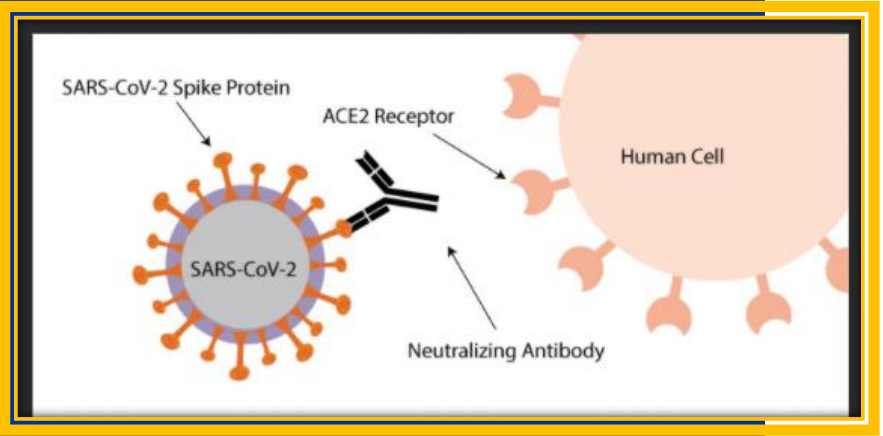
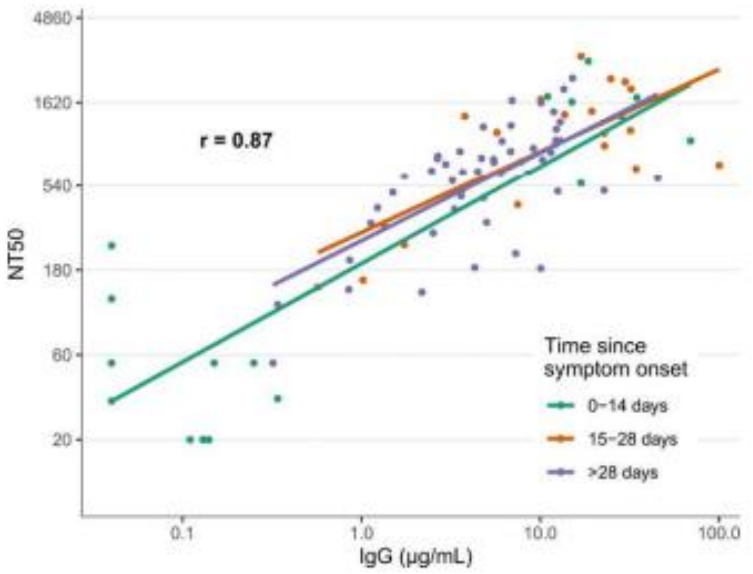
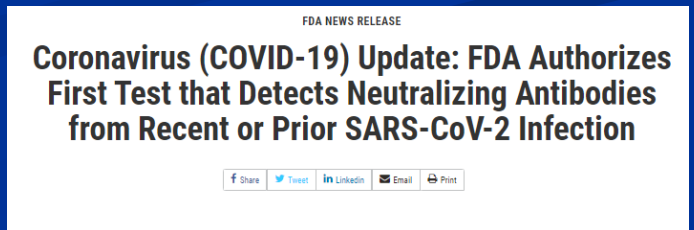


Figure:



Note: Adapted from Iyer *et al*. Correlation of SARS-CoV-2 neutralizing antibody titers in symptomatic RT-PCR positive persons with anti-RBD IgG responses at 0–14, 15–28, and >28 days post symptom onset. The overall repeated measures correlation coefficient (r) is shown. Lines represent simple linear models for each time period. NT50, 50% neutralizing titer. Permission request in process.

- Infection with SARS-CoV-2 or other viruses causes the body to produce two different kinds of antibodies. Neutralizing antibodies are able to bind a particular protein on the virus, and in the process, render the virus incapable of infecting cells.
- **Binding antibodies also bind to viral proteins, but they do not neutralize the virus or prevent infection.** **Neutralizing antibodies** are of particular interest to researchers because their presence usually correlates with **protection from infection**. Production of neutralizing antibodies is also one component of the immune response sought by researchers working on vaccine development.
- *"Testing for neutralizing antibodies will play an important role in advancing SARS-CoV-2 research, from assessing seroprevalence in populations, tracking infections in animals, to vaccine development, and **protective immunity** studies,"* Jungsoo Park, Marketing Director at GenScript told me in an interview.
- Antibody tests can show if an individual is currently infected with a virus or has previously been infected. Initially, the crew members of the American Dynasty were tested for SARS-CoV-2 binding antibodies. But upon their return to shore, the pre-departure samples were re-tested alongside fresh samples using the **GenScript test for neutralizing antibodies,** to help researchers better understand the sailors' immune profiles.
- It turned out that three of the original six sailors who tested positive did not have any SARS-CoV-2 neutralizing antibodies after all; the researchers concluded that initial antibody tests for these individuals were most likely false positives.


FDA NEWS RELEASE

Coronavirus (COVID-19) Update: FDA Authorizes First Test that Detects Neutralizing Antibodies from Recent or Prior SARS-CoV-2 Infection

Share Tweet LinkedIn Email Print

Neutralizing antibody after covid -19

verywell health 2020.11.12

V News · CORONAVIRUS NEWS

FDA Authorizes First Test that Detects Neutralizing Antibodies

By Lindsay Carlton · Fact checked by James Lacy

November 12, 2020

Fact checked by James Lacy on November 12, 2020

James Lacy, MLS, is a fact checker and researcher. James received a Master of Library Science degree from Dominican University.

Learn about our editorial process.

Advertisement

The blood test was developed by researchers at the Duke-NUS Medical School in Singapore and issued to GenScript USA Inc. It is the first to detect neutralizing antibodies from recent or prior infection with SARS-CoV-2—the virus that causes COVID-19.[3]

"Neutralizing doesn't mean killing [SARS-CoV-2]; it means preventing infection," James Crawford, MD, PhD, professor at the Feinstein Institutes for Medical Research and senior vice president of Northwell Health's laboratory services, tells Verywell.

GenScript Biotech

Key Takeaways

- The FDA recently approved a new blood test that detects neutralizing antibodies that can block SARS-CoV-2 from entering and infecting human cells.
- The test will be easier for scientists to use as it doesn't require using a live virus sample or highly-specialized lab equipment, and it can return results in one to two hours.
- Studying neutralizing antibodies could help assess future vaccine candidates and determine if a booster-type vaccine will be needed down the road.

中和抗體（neutralizing antibody）不能用來「診斷」是否感染新冠肺炎，它主要用來評估是否具備免疫保護力。☐ 中和抗體的用途與限制

☐ 可用於：評估疫苗接種後是否產生保護力

- 確認曾經感染後是否具備免疫力
- 作為邊境管制、入境免隔離的參考依據

How Long Can Neutralizing Antibodies Last Within the Body?

- Even though studies are constantly offering conflicting information about the length of time antibodies can stay in our system, Gronvall says people shouldn’ t get too hung up on a number because information about the virus is going to change over time. For a given virus, she says antibody levels typically peak at two- or three-months post-infection and then gradually wane as time goes on.

COVID-19 Immunity May **Last 5 Months** After Recovery, Study Finds

- “[Antibody levels] decline but that doesn’ t necessarily mean that’ s the end of immunity,” Gronvall says. “Your immune system is very complicated. There are these things called memory cells, so even though the levels of the antibodies wane, your immune system has some memory and can be spurred into action upon contact with the virus again."

COVID-19 Antibody Tests: A Valuable Public Health Tool with Limited Relevance to Individuals.

West R, Kobokovich A, Connell N, Gronvall GK.

Trends Microbiol. 2021 Mar;29(3):214-223. doi: 10.1016/j.tim.2020.11.002. Epub 2020 Nov 6.

Duration of efficacy :多重要

- Time factor, days? Months? Years?
- In onset of diseases
- The duration of disease
- The efficacy after treatment
- %
- Duration : permanent or short term

這個案例有好多問題-4

- **4.喝酒史要清楚敘述,才能判斷是否酒精性疾病**
- 小時候,(7-15歲)真的是淺嚐即止,喝一小杯很了不起.
- 長大一點15-20歲起就喝多起來可能一喝就半瓶以上400 ml.(紅酒就超過50公克)
- 長大就業,有些錢就是喝多動輒 1-2 瓶、就會喝過>80公克.
- 遇到知己好友、那更不得了,喝得嚀叮大醉.
  半打紅酒也不算多。量會達到三、五百公克

這個案例有好多問題-5.

- **5. HCC 的病史沒說清楚**
- @ 第一次住院如確定肝癌、總有**診斷之証據吧** (1) AFP 很高,>5,000 (2)Biopsy confirmed.
- (3) CT/angiography 看到特殊的影像.---
- @. 這一次住院為何沒有HCC的診斷.
- @. Cirrhosis是重要的診斷、6個月前有massive ascites,現在完全沒有,真的嗎?
- @.HCC為何提都不提AFP-值--是因為正常就認為不是HCC嗎? HCC的AFP值30% 是正常範圍

這個案例有好多問題-6

- **6. 區別primary liver tumor (HCC) or metastatic,一定要提出証據、**
- **Liver tumor 有很多方法可判定Primary or metastatic**
- @HCC: AFP 高, CEA 正常. Secondary CEA 很高,>20.
- @ HCC, Cirrhosis +HBV infection多, metastatic cancer一定另外有primary cancer
- @ angio/CT 不同,----
- @ Why ? discharge Dx 沒有肝癌也沒有肺癌的診斷。反而只
- 有肝硬化
- @Pathology confirmed lung cancer (adenocarcinoma)他說是pneumonia.這是很怪的表達、

這個案例有好多問題-7

7. Serum bilirubin : 2.0, 真的很清楚看到icteric sclera ?

一般人能分辨出黃疸 serum bilirubin常在5 mg/dl 以上,女病人常照鏡子,或許3.0mg/dl.就發現異狀.醫師恐怕要2.5 mg/dl 以上才會發現病人有icteric sclerae.

實事求是才最重要。

Icteric

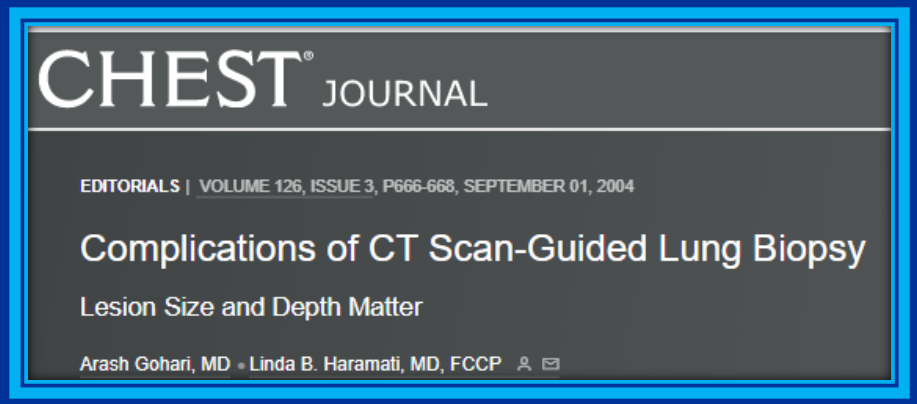
Anicteric, not icteric

這個案例有好多問題-8

- 8. **Ammonia 血氨333 很高,代表什麼?**
- Normal range < 80 u mol/L.
- Blood ammonia >120 就要小心**hepatic encephalopathy** 要處置。要看臨床之變化.
- Lactulose enema, to reduce ammonia reabsorption,+ protein restriction+ Electrolyte balance+Neurological follow up/EEG
- **要再查Blood ammonia才知是否進步,這些全未再查就出院了。**

這個案例有好多問題-9

- 9. Lung biopsy 第二天即出院,不怕危險嗎?


CHEST JOURNAL

EDITORIALS | VOLUME 126, ISSUE 3, P666-668, SEPTEMBER 01, 2004

Complications of CT Scan-Guided Lung Biopsy

Lesion Size and Depth Matter

Arash Gohari, MD • Linda B. Haramati, MD, FCCP

Percutaneous transthoracic biopsies are commonly performed for the diagnosis of thoracic lesions. Early reports of needle biopsies of the lung were published in the late 1800s.[1] In 1883, Leyden[1] biopsied the consolidated right lower lobe of a moribund 48-year-old man. The specimen was stained, and bacteria and WBCs were identified. Pneumonia was diagnosed, unfortunately, the patient died 1 day later.

Technologic advances in both needle design and imaging equipment have broadened the range of lesions that are accessible to needle biopsy. Lung biopsies can be performed by **fine-needle aspiration (FNA),** providing a specimen for cytologic examination, or using an automated core biopsy needle, providing a specimen for histologic examination. FNA was introduced by Nordenstrom[4] in 1965. Numerous reports have advocated the use of FNA, since it is a reasonably simple and safe technique with an accuracy of about 95% for malignant lesions,[5]despite a lower yield for benign lesions.[6]

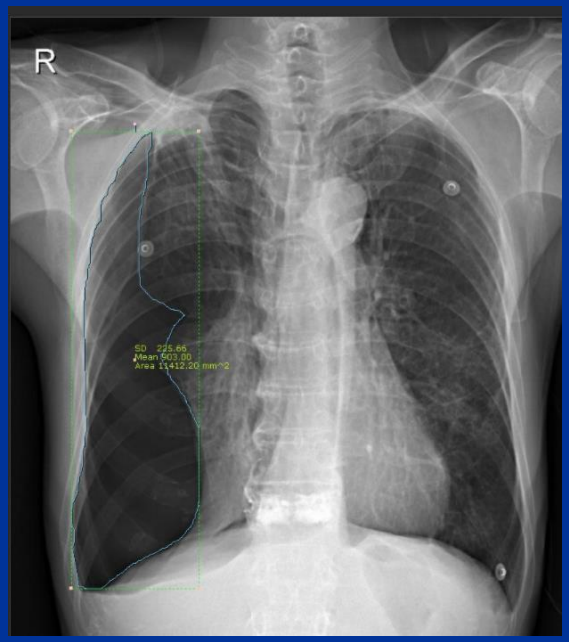
Complications after lung biopsy (FNA)

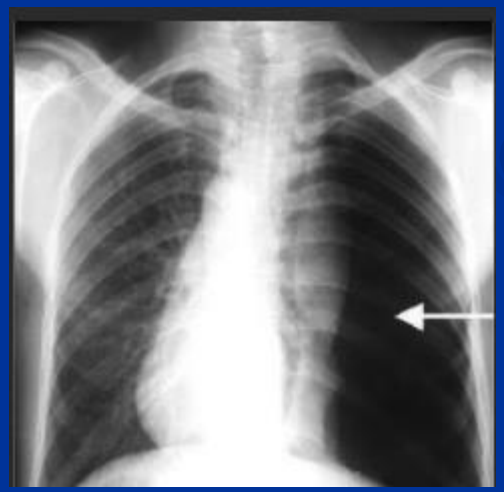
- **The most common complications of percutaneous transthoracic lung biopsy are pneumothorax and bleeding. Pneumothorax has a broad frequency range of 8 to 64%.[11] Bleeding occurs less often (range, 2 to 10%) but is more frequently fatal.**
- Many reports have evaluated the relationship between specific variables and the complications of percutaneous lung biopsy. Complications are evaluated according to variables related to the patient, the lesion, and the biopsy procedure.
- Yeow et al (Chest, 2004) analyzed the risk factors for pneumothorax and bleeding for 660 consecutive CT scan-guided percutaneous coaxial cutting needle biopsies. They consistently performed coaxial cutting needle biopsies because an on-site cytopathologist was not available. Yeow et al showed no increase in the risk pneumothorax for factors that intuitively, and in other series, have been suggested to increase the risk of pneumothorax. Emphysema, cavitation of the lesion, needle size, number of specimens, and postbiopsy patient positioning all showed no association with an increased risk of pneumothorax. Earlier studies[14] reported a higher risk of pneumothorax in patients with obstructive pulmonary disease. However, others, in agreement with Yeow et al, have found no correlation among emphysema, abnormal pulmonary function test results, and pneumothorax.
- **Bleeding is the second most common complication of percutaneous lung biopsy. Yeow et al reported a sixfold increase in bleeding complications for patients with lesions ≤ 2 cm in size compared with those having lesions > 4 cm in size. This increased risk has been attributed to the sampling of the adjacent aerated lung along with the decreased ability of the adjacent aerated lung to provide tamponade.** Laurent et al[25] reported comparable rates of pneumothorax and bleeding for nodules < 2 cm and > 2 cm. However, a varied length of needle throw may have confounded their results. In that series, the needle throw was adjusted on a case-by-case basis, depending on the size and position of the lesion. In contrast, Yeow et al consistently used a needle throw of 1.3 cm.

11>*Haramati LB and Austin JH* ***Complications after CT-guided needle biopsy through aerated versus nonaerated lung*** *Radiology.* 1991; **181**: 778

Clinical evaluation of presence of complications after lung biopsy

- Pneumothorax, SOB
- Forechest distress





- Bleeding : Shock and tachycardia.

Risk of bleeding after Transbronchial lung biopsy

- **Perhaps** a 45 % incidence in uremia (older studies).
- < 15% incidence if PLT < 50,000.
- **Other concerns**
  - Preprocedure laboratory studies often preferred
  - Importance of individualizing decisions based on H&P, Past medical History, Family History, and risk-benefit analysis.
  - One may consider stopping aspirin, other antiplatelet agents, and nonsteroidal anti-inflammatory drugs. One should definitely stop Plavix and anticoagulants (except subcutaneous Heparin used for prophylaxis).

Generally reported frequency of complications after Transbronchial lung biopsy

- **Bleeding > 50 ml 1-2 %**
- **Pneumothorax 1-4 %**
- **Death 0.04 - 0.12 %**

這個案例有好多問題-10
Discharge plan

- Status of HCC and how to manage
- Status of lung cancer, and how to manage

Quality of oncological care

很多問題要解決要處理,
本來就不要那麼快出院

一個案例有這麼多致命的缺點、臨床教師忽略了

- 真的很不應該,這樣例子卻筆筆皆是.(2025.10)

Knowledge
Skill
Experience--
practice
熱誠

1.不只要積極參予
2.懂得方法
3. 要抓住要領,才有效
4.隨機教學-→ VS Round-

最有效的臨床教學方法是「結合*實作與即時回饋*」的教學模式，例如床邊教學（bedside teaching）、Mini-CEX、DOPS等，搭配小組討論與反思練習。
這些方法能同時提升學生的臨床技能、溝通能力與批判性思考，並促進師生互動與學習動機。

- 診治病情要有量化的觀念
  Quantization of clinical information

- Guidelines (C.Y.Wang, 2022-2025)

Changes of symptoms.
先想是什麼問題→RR→再想診斷

- 1. 病人的主訴一定詳細問清楚, 、而且要知道**何時開始**time of onset.就知道病情已多久, (duration of disease, duration of problems.)
- 小心:病情輕或症狀少時常會忽略,來急診通常是嚴重到難以忍受.{grade 4-5/5}
- 所以要問**何時開始已有點不舒服,**
- **CRP 與時間的關連性最大**
- **TG 一過關鍵時刻也降得很快**
-

Problems—RR-SOAP

- 2. Biochemical data, WBC, CRP, 必須注意檢驗時間與發病之間隔,才知如何解讀.
- 2.1 Acute pancreatitis要在第一時間內檢查TG.才知是否**TG過高引起acute pancreatitis**.
- 2.2 Amylase and lipase 在acute pancreatitis onset 後之 6-8 hours 才增高達異常範圍、72小時後仍不正常表示胰臟炎持續、即severe pancreatitis)Mild pancretitis在72小時amylase已正常值.

Lab. Data in pancreatitis

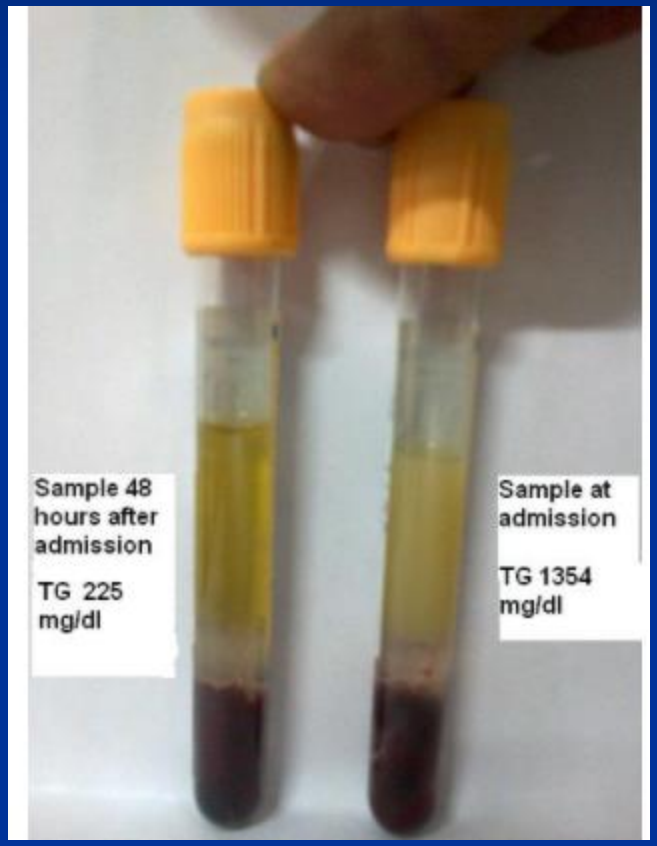
- 2.3 CRP通常在Acute pancreatitis onset 後6-8小時即增加。但72小時才超過1.0可作為Acute pancreatitis activity 之參考,如疾病進行會持續上升.確認已下降且下降至3.0 以下,方可出院
- 2.4 Severe acute pancreatitis (necrotizing).之血清鈣值(serum calcium)**通常在onset 36-48 小時才降至8.5mg/dl 以下.** 72 hours 才降至最低值8.0-7.0 mg/dl or less , **故在acute stage 至少要查兩次serum calcium (2-3 days內),就可確認是否necrotizing pancreatitis.**

Changes of lab data

- CRP
- Initial : 0.05-0.1
- 6-8 hours 0.1-0.2
- 16-24 hours, 0.2-0.4
- 36-48 hours 0.4-0.8
- **>48 hours >0.8**
- 72 hours : --1.2 or more
- 100 hours –>3.0
- 5.0-8.0

- **Acute pancreatitis due to hypertriglyceridemia**
- 1,000-10,000 during attack
- First day at ER: >1,000
- 12-24 hours later :
- 500-1000
- **24-36 hours : 200-500**
- **not diagnostic.**
- **Please check TG when the patients arrive at ER.**

The American Association for Clinical Chemistry (AACC) is a global scientific and medical professional organization dedicated to clinical laboratory science and its application to healthcare.



一般 <150 mg/dl.

AACC.org // Science & Research // Scientific Shorts // Acute Pancreatitis and Hypertriglyceridemia

Acute Pancreatitis and Hypertriglyceridemia

Author: Sutirtha Chakraborty and William Winter // **Date:** SEP.3.2013 // **Source:** Scientific Shorts

Case: A lean, nondiabetic 39 year old man presented to an outside hospital with severe upper abdominal pain. He had a history of alcoholism but he had no history of gall stones. He was diagnosed with acute pancreatitis, made npo and was treated with total parenteral nutrition (TPN).

Two days later he was transferred to the first author's hospital. At that time the patient's serum amylase was 787 U/L (reference interval: <60 U/L) and his serum lipase was 3850 U/L (reference interval: <100 U/L). An abdominal CT scan was consistent with the diagnosis of acute pancreatitis.

Because the serum was mildly lipemic, the next morning a serum triglyceride (TG) measurement was performed on the admission serum sample. The TG concentration was found to be greatly elevated at 1354 mg/dL (desirable range: <150 mg/dL).

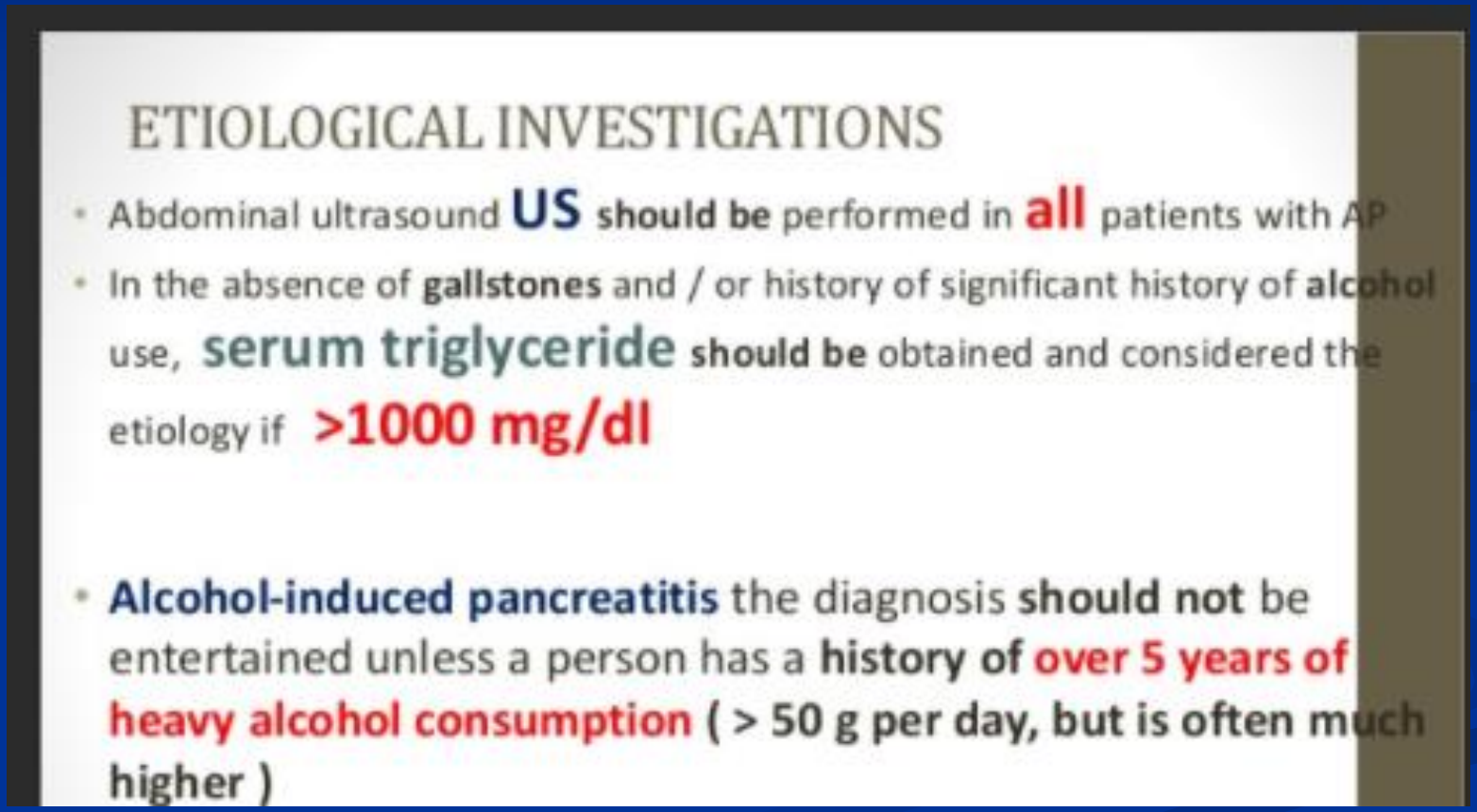
What is the clinico-biochemical interpretation of such an elevated TG in the setting of acute pancreatitis?

Following alcohol-induced and gallstone-induced acute pancreatitis, the next most common cause of acute pancreatitis is hypertriglyceridemia that accounts for 1 – 4% of cases (1). Because of the patient's turbid serum and the recognized causal relationship of hypertriglyceridemia to acute pancreatitis, a TG measurement was recommended. Indeed the subsequent finding of a markedly elevated TG level suggested hypertriglyceridemia as a significant contributor to the development of patient's acute pancreatitis. However, this is not the end of this story.

Scientific Shorts are brought to you by the AACC ACADEMY

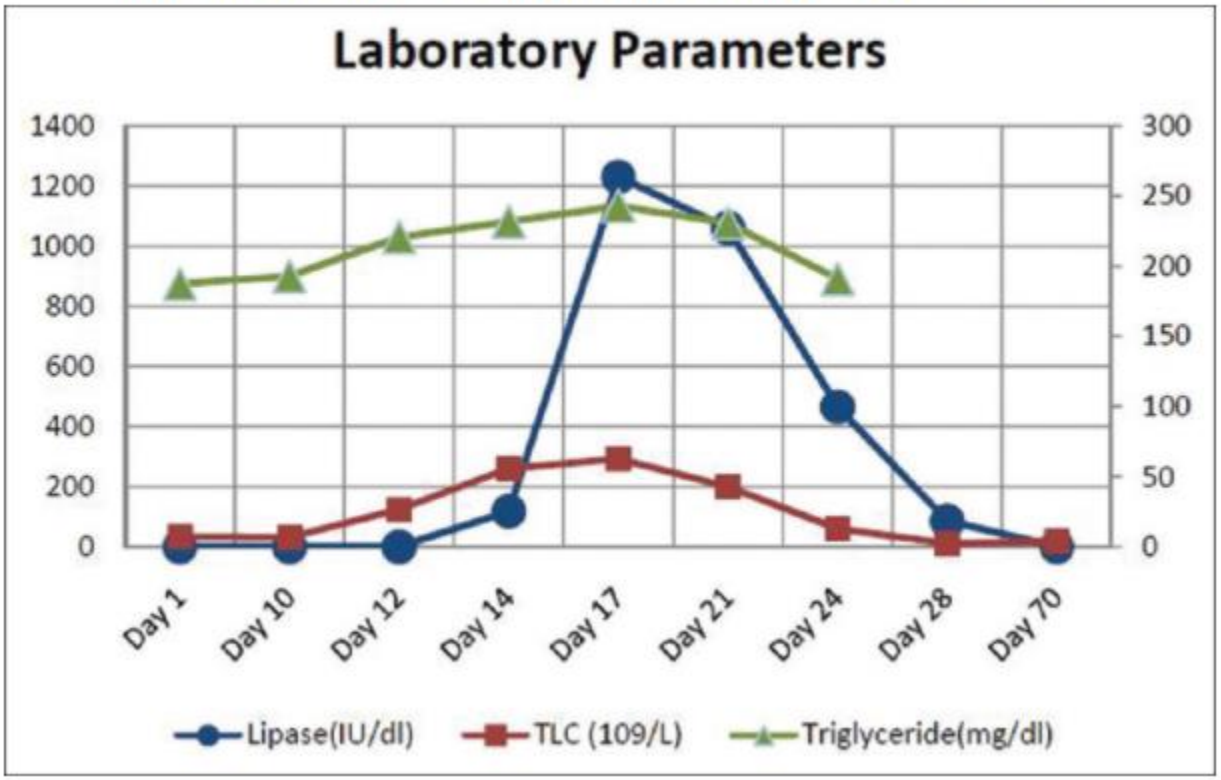
Sutirtha Chakraborty, MD & William Winter, MD, DABCC, FACB

R-roots, Etiology of acute pancreatitis



A case of acute pancreatitis, caused by ?

Figure 1: Change in total leukocyte count, lipase and triglyceride level during the development of acute pancreatitis



An 18-year-old female patient

Pancreatitis in acute promyelocytic leukemia: Drug-induced or differentiation syndrome?

Indian J. Medical and Pediatric Oncology

Year : 2017 | **Volume** : 38 | **Issue** : 3 | **Page** : 371-373

- **Acute promyelocytic leukemia (APL)** constitutes about 15% of all acute myeloid leukemia patients and can now be treated even without any chemotherapy, with all-trans-retinoic acid (ATRA) and arsenic trioxide (ATO). Acute pancreatitis (AP) is a rare adverse event in APL, which is primarily reported to be secondary to hypertriglyceridemia. Here, we have reported AP developed in a patient of APL, during induction with ATRA and ATO, but it was not associated with hypertriglyceridemia. Rather, it was associated with respiratory distress and weight gain, coincidental leukocytosis, bilateral pleural effusion, and edematous pancreatitis without any necrosis. Hence, AP in this case is diagnosed to be a manifestation of **differentiation syndrome**, and it responded to steroid.
- The patient had initial symptoms of respiratory distress before overt AP. Furthermore, the patient had significant weight gain during the development of AP. The total lymphocyte count was also raised during the period. The patient also developed bilateral pleural effusion concomitantly. The CECT showed edematous bulky pancreatitis without any necrosis. The patient's symptoms subsided with stoppage of therapy and dexamethasone. All these lead to a diagnosis of differentiation syndrome which manifested in the form of AP. The differentiation syndrome occurs due to release of cytokines from granules of abnormal promyelocytes while they differentiate which lead to endothelial leakage. This leads to widespread edema, including pulmonary edema and weight gain. The pancreatic edema may cause occlusion of pancreatic duct leading to the development of AP. The manifestation of differentiation syndrome in the form of AP is not mentioned in literature before. To the best of our knowledge, this is first case report, where APL patient developed AP as a manifestation of differentiation syndrome due to ATRA and ATO therapy.

Differentiation syndrome（分化綜合症）

- Differentiation syndrome（分化綜合症）是一種急性、潛在致命的藥物副作用，常見於急性早幼粒細胞白血病（APL）患者接受分化誘導治療時。其臨床表現多樣，需及早識別與處理。

定義與病因

- **分化綜合徵（Differentiation Syndrome, DS）**：又稱「維A酸綜合徵」，是白血病治療中使用 *全反式維A酸（ATRA）* 或 *亞砷酸（arsenic trioxide）* 等分化誘導藥物後，白血病細胞快速分化釋放大量細胞因子，引發全身性炎症反應。
- 也可見於使用 *IDH2抑制劑（如Enasidenib）* 治療急性髓系白血病（AML）時。

表現	說明
發燒	最常見初期症狀之一
呼吸困難 / 肺水腫	可能因毛細血管滲漏導致
低血壓 / 休克	血管擴張與液體外滲所致
體重快速增加	液體滯留與水腫
胸痛 / 骨痛 / 肌痛	細胞因子釋放引起
腎功能異常	嚴重者可能導致急性腎損傷
肝功能異常	ALT/AST升高，肝腫大
心包積液 / 胸腔積液	需影像學檢查確認

發病時間與風險

- **發病時間**：通常在治療開始後 *數天至兩週內* 發生。
- **發生率**：報導介於 *2%–27%*，病死率可達 *5%–29%* [1]。
- **高風險族群**：白血病細胞負荷高者、腎功能不全者、合併感染者。

處理方式

- **預防性使用類固醇**（如 Dexamethasone）可降低發病率。
- 一旦懷疑 DS，應立即停用分化誘導藥物，並給予類固醇治療。
- 嚴重者需住院監測、支持性治療（如氧氣、利尿劑、血壓支持）。

喝酒是一回事,喝酒生病是另一回事。量要夠、時間要長

- 3.是否alcoholic disease？要問清楚喝酒量/喝多久?
- @@ alcoholic liver diseases (cirrhosis),8 years-120 gm/day or 12 years/80 gm/dl.
- **@@ alcoholic pancreatitis, >50 gm/day for >5 years.**
- Some cases with acute pancreatitis 喝酒量只有40 gm. before attack. (with history of moderate drinking for 8 years.)

HBV infection

- 4. HBV infection and liver disease:要注意期間(多久)
- 問何時發現B肝感染? {HBsAg (+), Anti HBc (+)}
- 何時有Liver diseases(AST /ALT abnormal)
- 何時有cirrhosis ,(physical findings, LFT, Ascites, Varices, nodular margin by mages, histology, decompensated signs.)
- **NB with HBV infection->CH(active or inactive)→ cirrhosis (20-30 years)-→ HCC (50 years)**

Table 3 Overall cirrhosis incidence rates in longitudinal studies of patients with chronic hepatitis B infection according to clinical status and geographic area

References [a]	Clinical status	Geographic area	No. Studies	No. patients	Mean age at entry (yr)	% Male	Mean follow-up (years)	Cirrhosis incidence [b]
39, 40	Asymptomatic carriers	Taiwan	2[c]	5077	43	72	9.1	0.9
30	Inactive carrier[d]	Europe	1	296	36	68	29	0.01
17		Taiwan	1	184	32	79	8	0.07
	Chronic hepatitis[e]							
41, 42	HBeAg positive	Europe	2	77	35	69	4.5	3.8
28, 43, 44, 45, 46	HBeAg positive	Taiwan, Korea	5	1198	30	80	7.6	1.6
47, 48	HBeAg negative[f]	Europe	2	30	34[g]	85[g]	3	9.7

Asymptomatic carriers-→cirrhosis -----0.9 % (9 years) or 0.07 %(8 years)
Chronic hepatitis-→cirrhosis (Asians) -1.6 % (7.6 years) (HBeAg +)
Chronic hepatitis-→cirrhosis (Europe)-3.8 % (4.5 years)

發生率也要考慮地區

- In studies conducted in East Asian countries, the summary HCC incidence rate ranged from 0.2 per 100 person years among inactive carriers to 0.6 in persons with chronic hepatitis B but without cirrhosis and 3.7 in subjects with compensated cirrhosis; the corresponding 5-year HCC cumulative incidences were 1%, 3% and 17%.

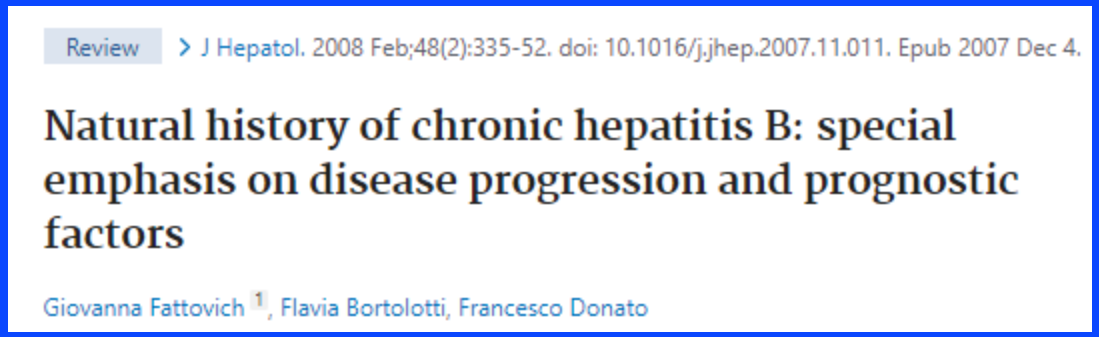
In studies performed in Europe and the United States, the summary HCC incidence rate was 0.02 per 100 person years in inactive carriers, 0.3 in subjects with chronic hepatitis B without cirrhosis, and 2.2 in subjects with compensated cirrhosis; the corresponding 5-year HCC cumulative incidences were 0.1%, 1% and 10%.

Incidence of HCC in various status of HBV infection

Asian		Western
Inactive carrier	0.2/100 PY	0.02/100 py
Chronic hepatitis	0.6	0.3
Compensated cirrhosis	3.7	2.2

Cirrhosis → HCC

- 每一年大約有 3%發生HCC,
- Cirrhotic patient : the 5-year cumulative risk of developing hepatocellular carcinoma 17% in East Asia
- 10% in the Western Europe and the United States



Review > J Hepatol. 2008 Feb;48(2):335-52. doi: 10.1016/j.jhep.2007.11.011. Epub 2007 Dec 4.

Natural history of chronic hepatitis B: special emphasis on disease progression and prognostic factors

Giovanna Fattovich [1], Flavia Bortolotti, Francesco Donato

有些病有時間影響的變化-1

- **5. 所以Past history 要問清何時發生的**
- 有些病有時間影響的變化.
- EX. HBsAg carrier→CH→Cirrhosis→HCC
- Colon polyp(adenoma)-→ adenocarcinoma
- UC, total colitis -→ colon cancer
- Pancreatitis→ Chronic Pancreatitis→ Cancer
- GERD-→ Barrett Esophagus → esophageal cancer
- Abdominal operation→ adhesion→ Mechanical ileus

有些病有時間影響的變化-2

- Cirrhosis→ decompensation
- ascites, hyperbilirubinemia
- Hepatic encephalopathy
- Gall bladder stone → CBD stone→ obstructive
- jaundice→ acute pancreatitis (a few DAYS)
- 7-10 days.
- Gall bladder polyp--- ? Factors-→ GB cancer

Size of GB polyp.

MAYO Clinic

Polyps can be cancerous, but they rarely are. About 95% of gallbladder polyps are benign.
The size of a gallbladder polyp can help predict whether it's cancerous (malignant) or noncancerous (benign). Small gallbladder polyps that are less than 1/2 inch — a little more than a centimeter — in diameter are unlikely to be cancerous and generally don't require treatment.

Gallbladder polyps larger than 1/2 inch in diameter are more likely to be cancerous or turn into cancer over time, and those larger than 3/4 inch (almost 2 centimeters) in diameter may pose a significant risk of being malignant.

Gallbladder polyp size helps predict gallbladder cancer risk

Written by Devon Andre
Published on March 14, 2016

Gallbladder polyp size can help predict gallbladder cancer risk

Nearly 95 percent of gallbladder polyps are benign, but that still leaves a small percentage to be cancerous. Furthermore, the size of the polyp can reveal whether or not it is cancerous.

Small polyps below half an inch are unlikely to be cancerous and don't generally require treatment either. Follow-up examinations may still be conducted by your doctor to ensure they are not growing or causing any other problems.

Polyps larger than one centimeter are more likely to be cancerous.

A retrospective analysis conducted in the U.K. supported such suggestion, as researchers uncovered that the larger the size of a gallbladder polyp, the higher the risk of it being malignant.

If gallbladder polyps are discovered early on, then treatment or surgical removal can be done in order to stop cancerous polyps from spreading.

Korean J Hepatobiliary Pancreat Surg. 2014 Feb;18(1):9-13. doi: 10.14701/kjhbps.2014.18.1.9. Epub 2014 Feb 24.

Analysis of gallbladder polypoid lesion size as an indication of the risk of gallbladder cancer

Ji Eun Sung [1], Chang Woo Nam [1], Yang Won Nah [1], Byung Sung Kim [1]

Affiliations + expand

PMID: 26155240 PMCID: PMC4492335 DOI: 10.14701/kjhbps.2014.18.1.9

Of a total of 253 patients, 235 patients had benign lesions, and 18 patients had malignant lesions. Among the malignant polyp patients, 11 had pT1 cancer, 6 had pT2 cancer, and 1 had pT3 cancer. The average size of polypoid lesions was 9.1±3.1 mm and that of malignant lesions was 28.2±16.4 mm. The receiver operating characteristic (ROC) curve of the benign and malignant groups shows that 14.5 mm is the optimal point of prediction of the malignancy. Of a total of 18 patients of GB cancer, 11 had pT1 and the average size of their polypoid lesions was 20.5±5.8 mm 7 had pT2 with a size of 39.1±20.7 mm. ROC curve analysis of the pT1 and pT2 groups shows that 27 mm would be the optimal point to predict T2 and above cancer.

Severity of disease.

- 6. **Severity of disease** 可由data的數字直接判定
- Ex. Acute necrotizing pancreatitis→ serum
- Calcium <8.5 mg/dl
- GI bleeding ---Hb, Ht,
- Active bleeding, tachycardia (>100/min.)
- Abscess 大→**serum albumin** 明顯下降
- Sepsis –(inflammatory diseases):
- **WBC count** >15,000; >30,000, **CRP>12,**

Severity of acute pancreatitis

Research Article | Open Access
Volume 2017 | Article ID 1869091 | https://doi.org/10.1155/2017/1869091

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Prediction of Severity of Acute Pancreatitis Using Total Serum Calcium and Albumin-Corrected Calcium: A Prospective Study in Tertiary Center Hospital in Nepal

Ashik Pokharel,[1] Prem Raj Sigdel,[1] Suman Phuyal,[1] Prasan Bir Singh Kansakar,[1] and Pradeep Vaidya[1]

Surgery Research and Practice / 2017 / Article / Tab 1S

Table 1

Comparison of the mean total serum calcium and albumin-corrected calcium as per severity.

Factor	Total population ($n = 80$)	Mild acute pancreatitis ($n = 55$)	Moderately severe pancreatitis ($n = 14$)	Severe acute pancreatitis ($n = 11$)	p value
Total serum calcium (mg/dl), mean ± SD	7.92 ± 1.09	8.22 ± 1.11	7.51 ± 0.61	6.98 ± 0.67	0.001
Albumin-corrected calcium (mg/dl), mean ± SD	7.87 ± 1.07	8.15 ± 1.08	7.41 ± 0.84	7.01 ± 0.42	0.002

7. Physical findings也要有量的觀念

- 7. Physical findings也要有量的觀念
- Jaundice –anicteric, sub-icteric, slightly icteric, severely icteric (文字之敘述)
- Anemia –mild, moderately severe, severe (pale)
- Vital signs
- Size of liver and spleen
- Leg edema(+)~(++++)有分寸
- Ascites –abdominal distension,
- Abdominal girth, (by cm.) shifting dullness

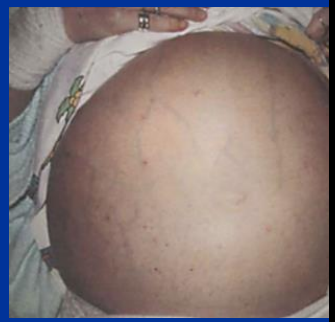
- 8. Physical findings也要有量的觀念,也可以看出病程之變化,是否改善
- Ex. Hepatic coma (clinical grades)
- Shock(BP, Pulse, and anuria)

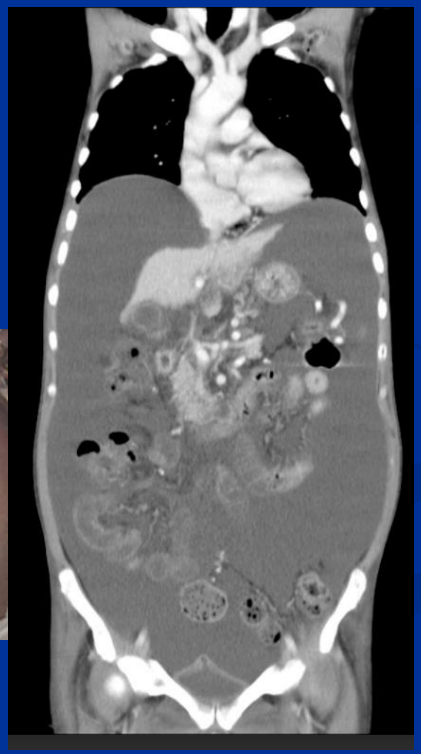
Clinical grading of HE

Clinical grade	Clinical signs	Flapping tremor
Grade 1 (prodrome)	Alert, euphoric, occasionally depression. Poor concentration, slow mentation and affect, reversed sleep rhythm.	Infrequent at this stage
Grade 2 (impending coma)	Drowsiness, lethargic, inappropriate behavior, disorientation.	Easily elicited
Grade 3 (early coma)	Stuporose but easily rousable, marked confusion, incoherent speech	Usually present
Grade 4 (deep coma)	Coma, unresponsive but may respond to painful stimulus	Usually absent

Ascites : direct signs.

- Abdominal girth, increased
- Body weight : increased
- Edema.
- Symptoms—abdominal distension



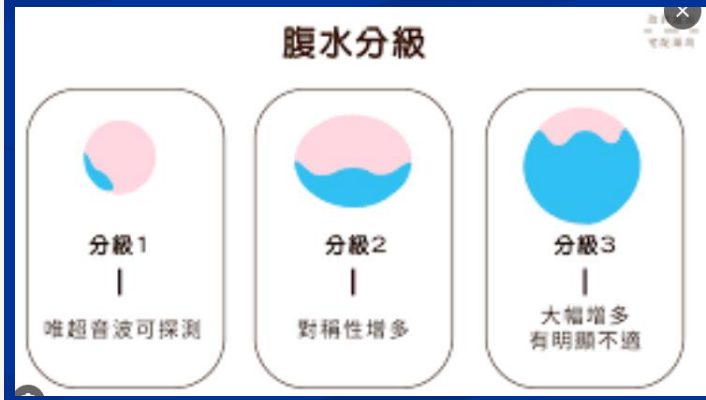


Ascites

- 1. abdominal distension 程度
- 2. Abdominal girth, (by cm.)
- 3. shifting dullness
- 4. Increase in BW.

🧠 腹水量的臨床分級（根據超音波深度與症狀）

分級	腹水量估計	臨床表現	超音波判讀
1級（少量）	< 1000 ml	無明顯腹脹，移動性濁音陰性	腹水深度 < 3 cm，分布於腹腔間隙
2級（中量）	約 1000–3000 ml	腹部對稱性隆起，輕度腹脹	腸管被腹水淹沒，深度 3–10 cm
3級（大量）	> 3000 ml	明顯腹脹、腹壁膨隆、可能脐疝	腹水占據整個腹腔，深度 > 10 cm



Size of mass (by cm.)

- **9. Nodular mass (tumor) 要紀錄大小及數目.**
- Physical findings—observation
- Images size—US, CT , endoscopy, MR, X-ray
- Descriptive words固然也有敘述表達大小的用語,但不夠明確.
- Huge, big, large,
- Small, very small, tiny

Huge, big, large 那一個大?

huge (hyōōj)

adj. **hug·er, hug·est**

1. Of exceedingly great size, extent, or quantity. See Synonyms at **enormous**.
2. Of exceedingly great scope or nature: *the huge influence of the Hellenic world.*
3. *Informal* Contributing in a major way to success; very important: *The defensive line was huge in the second half.*

Exceedingly great size, 超大的

Big : Of considerable size, number, quantity, magnitude, or extent; large

相當大

Large :

large (lārj)

adj. **larg·er, larg·est**

1. Of greater than average size, extent, quantity, or amount; big.
2. Of greater than average scope, breadth, or capacity; comprehensive.
3. Important; significant: *had a large role in the negotiations; a large producer of paper goods.*

比一般的大

3-5 公分比一般大,large
5-8 cm,. 很大叫big
>8 cm. (>10 cm.) huge

這是我的解釋,
我的用法

巨大、非常大、超大、
很大、好大,
相當大 不小, 大的

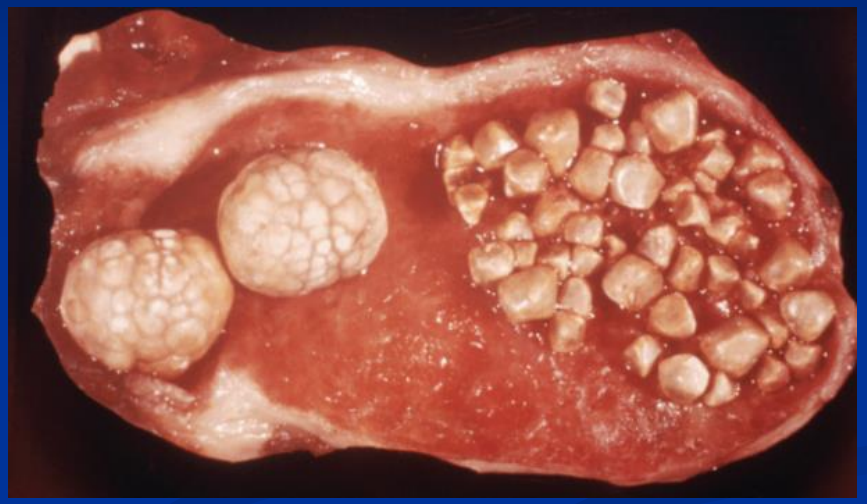
不同位置 病變的大小.說法也不同

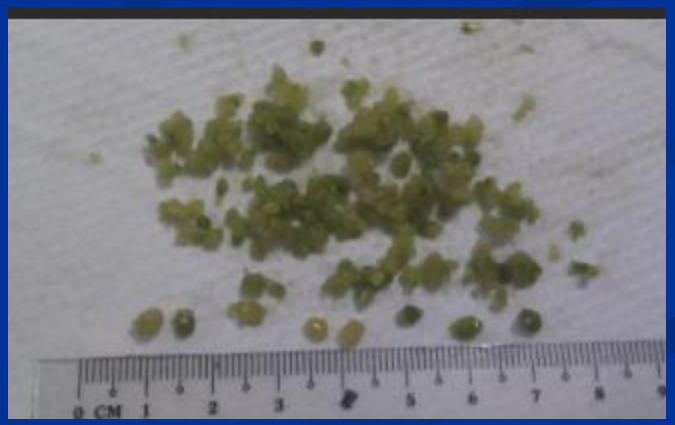
- Gall bladder stone 1.0 cm 以上就可以說large, 2 cm. 以上叫big or huge
- 0.5-0.9 cm. moderately sized stone
- 0.2-0.4 cm small stone
- <0.2 cm. Tiny stone
- Not measurable small size--- gall bladder sand

What is the normal size of a gallstone?

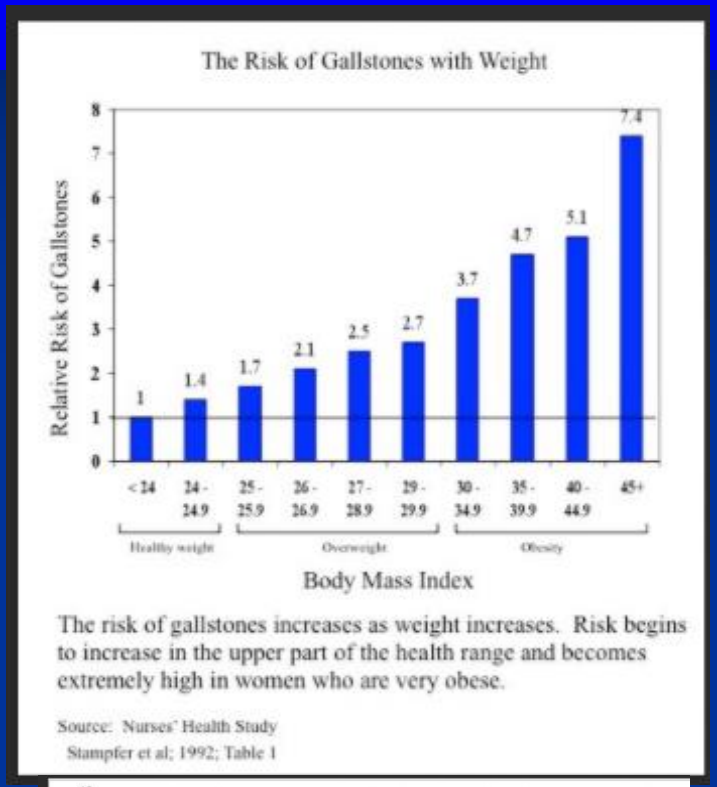
The answer is that there is no normal size when it comes to gallstones. Some patients have anywhere from a few to hundreds of tiny gallstones. Other patients will have a single gallstone as large as 5 cm, although a gallstone of this size is rare. Not everyone with gallstones will become symptomatic.

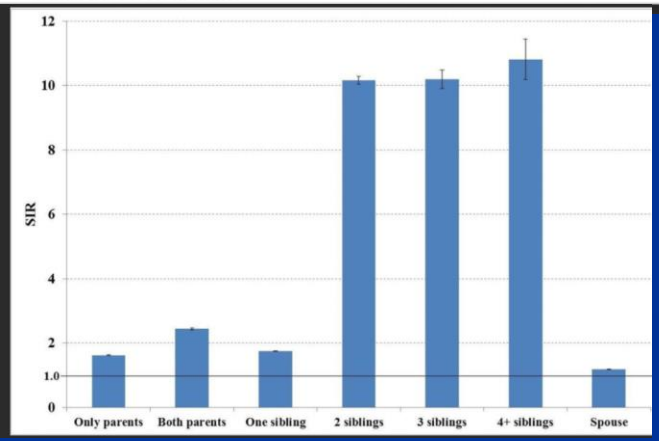
Sizes of gall stones





危險度(影響發生率)Risk ratio 也用數字表示





Gallstones
Original research

Familial risks for gallstones in the population of Sweden

Kari Hemminki[1,2], Otto Hemminki[3,4], Asta Försti[1,2], Kristina Sundquist[2,5,6], Jan Sundquist[2,5,6], Xinjun Li[2]

Author affiliations +

BMJ, Open gastroenterology
Vol. 4

Results Gallstone disease was diagnosed in 660 732 patients, with an overall incidence of 131 per 100 000 person-years. Familial cases accounted for 36.0% of all patients with gallstone disease. Of these, 50.9% had a parental family history (SIR 1.62), 35.1% had a sibling history (SIR 1.75) and 14.0% had a parental+sibling history (SIR 2.58). Among a total of 54 630 affected siblings, 84.4% were sibling pairs (SIR 1.55). However, the remaining 15.6% of the affected siblings constituted the high-risk group of multiple affected siblings and an SIR >10; these persons accounted for 7.7% of all familial cases. The spousal risk was only slightly increased to 1.18.
Conclusions Overall, the results point to the underlying genetic causes for the observed familial clustering, which may involve polygenic gene–environmental interactions for most familial cases but high-risk genes in close to 10% of cases. Family histories should be taken intoaccount in the medical setting and used for counselling of at-risk individuals.

Gastroenterology. 2011 Feb;140(2):508-16. doi: 10.1053/j.gastro.2010.10.060. Epub 2010 Nov 11.

Gallstone disease is associated with increased mortality in the United States

Constance E Ruhl [1], James E Everhart

Affiliations + expand

PMID: 21075109 PMCID: PMC3060665 DOI: 10.1053/j.gastro.2010.10.060

Free PMC article

美國的發生率7.1 %

Abstract

Background & aims: Gallstones are common and contribute to morbidity and health care costs, but their effects on mortality are unclear. We examined whether gallstone disease was associated with overall and cause-specific mortalities in a prospective national population-based sample.

Methods: We analyzed data from 14,228 participants in the third US National Health and Nutrition Examination Survey (20-74 years old) who underwent gallbladder ultrasonography from 1988 to 1994. Gallstone disease was defined as ultrasound-documented gallstones or evidence of cholecystectomy. The underlying cause of death was identified from death certificates collected through 2006 (mean follow-up, 14.3 years). Mortality hazard ratios (HR) were calculated using Cox proportional hazards regression analysis to adjust for multiple demographic and cardiovascular disease risk factors.

Results: The prevalence of gallstones was 7.1% and of cholecystectomy was 5.3%. During a follow-up period of 18 years or more, the cumulative mortality was 16.5% from all causes (2389 deaths), 6.7% from cardiovascular disease (886 deaths), and 4.9% from cancer (651 deaths). Participants with gallstone disease had higher all-cause mortality in age-adjusted (HR = 1.3; 95% confidence interval [CI]: 1.2-1.5) and multivariate-adjusted analysis (HR = 1.3; 95% CI: 1.1-1.5). A similar increase was observed for cardiovascular disease mortality (multivariate-adjusted HR = 1.4; 95% CI: 1.2-1.7), and cancer mortality (multivariate-adjusted HR = 1.3; 95% CI: 0.98-1.8). Individuals with gallstones had a similar increase in risk of death as those with cholecystectomy (multivariate-adjusted HR = 1.1; 95% CI: 0.92-1.4).

Randomized Controlled Trial > Eur J Epidemiol. 2017 Jun;32(6):501-510.
doi: 10.1007/s10654-017-0263-x. Epub 2017 May 27.

Screen-detected gallstone disease and cardiovascular disease

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PMID: 28551778 DOI: 10.1007/s10654-017-0263-x

Abstract

Knowledge about temporal associations for screen-detected gallstone disease and cardiovascular disease is limited. The objective of this study was to determine if screen-detected gallstones or cholecystectomy was associated with development of cardiovascular disease. A cohort study of three randomly selected groups from the general population of Copenhagen was performed. Participants (n = 5928) were examined 1982-1992 and underwent abdominal ultrasound examination to detect gallstone disease and were not informed of their gallstone status. Participants were followed up for occurrence of cardiovascular disease through nationwide registers until December 2014. Multivariable Cox regression analyses were performed including traditional cardiovascular disease risk factors and apolipoprotein E genotype. Gallstone disease was identified in 10% (591/5928) of participants at baseline of whom 6.8% had gallstones and 3.2% had cholecystectomy. The study population was

丹麥: 6.8 % with gallstones
3.2 % with cholecystectomy.
10 % with gall stone diseases.

Gall stone in Taiwan

J Clin Gastroenterol. 1990 Oct;12(5):542-6. doi: 10.1097/00004836-199010000-00011.

Risk factors for gallstones among Chinese in Taiwan. A community sonographic survey

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PMID: 2229997 DOI: 10.1097/00004836-199010000-00011

Abstract

A health survey of adults aged 30 years or more was carried out in southwest Taiwan to determine the prevalence of gallstones and to study risk factors associated with gallstones. Blood samples were collected and abdominal sonographic examination and anthropometric measurements were performed on a total of 923 people. The 40 gallstone cases detected resulted in a prevalence of 4.3%. The risk factors explored included age, sex, hepatitis, obesity, hyperlipidemia, and diabetes mellitus (DM). Age and DM were the only significant factors associated with gallstones in our study. With a reference group of 30-39-year-olds as a comparison, multiple logistic regression analysis showed a trend effect with odds ratios of 1.73, 3.74, and 6.32 for age groups of 40-49, 50-59, and 60 or above, respectively. The odds ratio for DM was as high as 2.59. However, sex, body weight index, chronic hepatitis B, and hyperlipidemia were not significantly associated with gallstones.

923 cases,.
40 gall stones cases
Prevalence :4.3 %

Risk factors判定跟處置

模組一：什麼是危險因素？（定義與核心概念）

- **核心概念**：「危險因素是增加疾病發生機率的條件，不等於疾病本身」
- **口訣記憶**：「危險不等於確診，但不能忽略」

模組二：三大分類，一口氣記住！

分類	口訣	說明	例子
不可改變型	「天生的事改不了」	基因、年齡、性別	男性、65歲以上、家族史
可改變型	「生活習慣能調整」	行為、環境、代謝	吸菸、肥胖、高血壓
社會型	「制度與支持也有影響」	社會資源、教育、孤立	經濟困難、低教育程度、社會孤立

模組三：臨床應用三步驟（辨識 → 解釋 → 行動） 這是最困難的地方
要讓學生能夠從模糊的資訊中,辨別危險因素, 然後還要跟病人解釋清楚
要把這些危險因素降低, 基本上還要病人立刻行動配合才能夠收到效果
這就是危險因素的判定跟處置

□臨床常見危險因素（20 項)

1. 年齡（如 ≥65 歲）
2. 性別（某些疾病有性別差異
3. 家族病史（如心血管病、糖尿病、癌症）
4. 高血壓
5. 糖尿病或血糖異常
6. 高血脂 / 高膽固醇
7. 肥胖（BMI ≥27）
8. 吸菸史
9. 飲酒習慣
10. 久坐 / 缺乏運動
11. 慢性腎病或腎功能異常
12. 肝功能異常 / 慢性肝病
13. 心血管疾病史（如心肌梗塞、中風）
14. 呼吸系統疾病史（如 COPD、氣喘）
15. 精神健康狀況（如憂鬱、焦慮、認知障礙）
16. 藥物使用史（特別是抗凝劑、類固醇、精神科藥物）過敏史
17. 跌倒史（尤其是過去一年內）
18. 視力 / 聽力障礙
19. 社會支持不足 / 孤立
20. 營養不良 / 體重減輕

病人初診時逐項勾選並註記
□ 無風險⚠□ 潛在風險
□高風險（需立即介入）

J Gastroenterol Hepatol. 2006 Nov;21(11):1737-43. doi: 10.1111/j.1440-1746.2006.04381.x.

Prevalence and risk factors of gallstone disease in an adult population of Taiwan: an epidemiological survey

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PMID: 16984599 DOI: 10.1111/j.1440-1746.2006.04381.x

Abstract

Background and aims: The aim of this study was to determine the prevalence and risk factors of gallstone disease (GSD) in an adult population of Taiwan through a population-based screening study.

Methods: A cross-sectional community study in a rural village of Taiwan was conducted in 3333 Chinese adults (aged > or = 18 years) undergoing ultrasonography. A questionnaire on personal history was completed to ascertain whether the removed gallbladder contained stones in all cholecystectomized subjects, the dietary habits (vegetarian/non-vegetarian diet), the history of GSD in the participant's first-degree relatives, the history of gastrointestinal surgery (vagotomy, gastrectomy for peptic ulcer disease, or ileal resection), parity, and use of oral contraceptives. The demographic characteristics and biochemical parameters were recorded.

Results: The overall prevalence of GSD was 5.0% (4.6% in men, 5.4% in women) with no significant sex differences (men/women: odds ratio [OR] 0.71, 95% confidence interval [CI] 0.50-1.01, P = 0.058). Logistic regression analysis showed that increasing age (men: 40-64 years, OR 7.38, 95% CI 2.59-21.01, P < 0.001 and > or = 65 years, OR 14.16, 95% CI 4.84-41.47, P < 0.001; women: 40-64 years, OR 4.08, 95% CI 1.90-8.75, P < 0.001 and > or = 65 years, OR 6.78, 95% CI 2.97-15.46, P < 0.001) and the presence of fatty liver evidenced by ultrasonography (men: OR 2.24, 95% CI 1.32-3.80, P = 0.003;

Gall stone in Taiwan

秀傳
3333 adults
Overall prevalence : 5.0 %
Male: 4.6 %
Female : 5.4 %
OR:
Age 65 and over—14.16
40-64 : 7.38

Gall stone in Taiwan

BMC Gastroenterol. 2009 Aug 22;9:63. doi: 10.1186/1471-230X-9-63.

Nationwide epidemiological study of severe gallstone disease in Taiwan

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Hospital admission 0.6/1000

A retrospective longitudinal study was conducted using Taiwan National Health Insurance Research Database collected during 1997-2005. Patients with incident severe gallstone disease (acute cholecystitis, biliary pancreatitis, acute cholangitis) and gallstone-related procedures (elective and non-elective cholecystectomy, endoscopic retrograde cholangiopancreatography [ERCP]) that led to hospital admission were identified using ICD-9-CM diagnostic and procedure codes.

The hospital admission rate for severe gallstone disease increased with advancing age and the age-standardized rate (95% CI) per 1000 population was 0.60 (0.59-0.60) for men and 0.59 (0.59-0.60) for women. Men had a higher rate of acute cholecystitis, probably due to the substantially lower rate of elective cholecystectomy among men than women. For those aged 20-39, hospital admissions for all gallstone-related complications and procedures increased significantly. For those aged >or=60, incidences of biliary pancreatitis, acute cholangitis, and hospital admission for gallstone receiving ERCP increased significantly without substantial change in the incidence of acute cholecystitis and despite a decreased rate of elective cholecystectomy.

BMC Gastroenterol. 2014 Apr 28;14:83. doi: 10.1186/1471-230X-14-83.

Clinical predictors of incident gallstone disease in a Chinese population in Taipei, Taiwan

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PMID: 24775330 PMCID: PMC4006445 DOI: 10.1186/1471-230X-14-83

Free PMC article

Abstract

Background: Gallstone disease (GSD) is a common gastrointestinal disorder throughout the world. The authors explored the incidence of GSD in Taiwan and its condition-associated predictive factors.

Methods: The initial study cohort comprised 2386 healthy adult participants, who were voluntarily admitted to a teaching hospital for a physical check-up in 2002 in Taipei, Taiwan. After excluding 126 patients who exhibited prevalent GSD, 2260 non-GSD participants received annual follow-up screenings for GSD until 31 December, 2007. Of those, 1296 (57.3%) patients were re-examined to collect blood samples and conduct ultrasound sonography.

Results: Among the 1296 participants who exhibited no GSD at the first screening, 23 patients developed GSD during 3640 person-years of follow-up. The incidence was 0.632% per year (95% CI: 0.292%-2.009%). After conducting a Cox regression, increased age (50-59 years versus < 40 years, RR = 2.16 [95% CI: 1.09-5.97], 60+ years versus < 40 years, RR = 3.81 [95% CI: 2.77-8.63]), high body mass index (≥27 kg/m2 versus < 24 kg/m2, RR = 1.64 [95% CI: 1.07-2.98]), high fasting plasma glucose levels (≥126 mg/dL versus < 110 mg/dL, RR = 1.68, 95% CI: 1.10-3.87), and nonalcoholic fatty liver disease (yes versus no, RR = 1.44, 95% CI: 1.21-1.90) appeared to be significantly related to developing GSD.

Gall stone in Taiwan

1296 persons without
Gall stone
Follow up
3640 patient-yaers

-→ 23 developed gall stones

0.632 %/year.

10. Clinical outcome and discharge decision也要有數字依據.

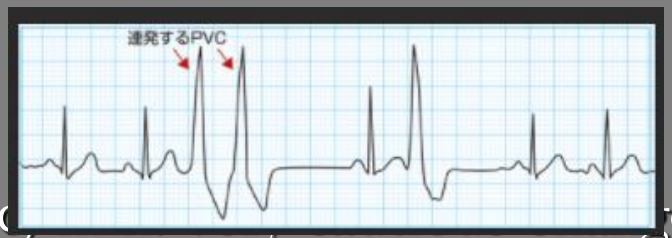
- Outcome: completely
- healed, (healed)
- nearly healed
- improved much
- improved
- **almost unchanged**
- worse, downhill, **poor**
- critical and discharged
- death

- Discharge decision
- **Discharge parameters,**
- **(Second goal)**
- Ex. Gall stone with pancreatitis
- **1. No more abdominal pain**
- **2.No fever,**
- **3. No remarkable jaundice (serum**
- **bilirubin: < 3.0)**
- **4. GGT: < 100**
- **5. GOT/GPT: all < 50**
- **6. CRP< 3,**
- **7. WBC : normal**
- **8. Amylase and lipase : normal range**

11. ECG與預後相關之重要數據

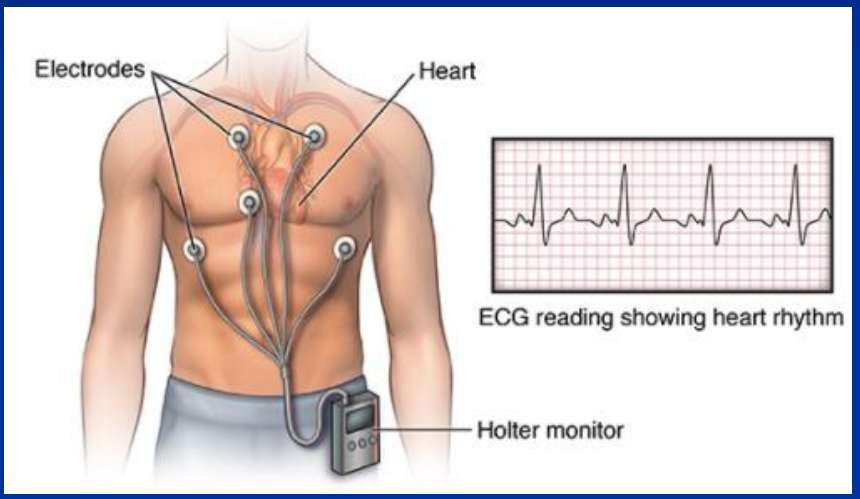
- 1. Heart rate : bradycardia :<60/min.
- Dangerous bradycardia < 48/min.
- Tachycardia > 100/min,
- cautious tachycardia > 120/min.
- 2. Number of VPC/min. **Multiple, >6/min.**→VT, VF

  Number of APC/VPC /min.



- 3. Cardiac arrest duration > 2.5 sec
- >3 sec.—pacemaker is absolutely indicated
- 4. Number of VPC/24 hours (by Holter).
- VENTRICULAR PREMATURE CONTRACTION – VPC – PVC – VPB

24 hour ECG monitoring for arrhythmia



HOLTER MONITORING

1. Ambulatory (Holter) electrocardiography (ECG) is a widely used noninvasive test to evaluate cardiac rhythm abnormalities

2. It has also been used for assessing pacemaker and ICD function, ischemia, and heart rate variability.

3. The clinical utility of the ambulatory ECG recording lies in its ability to continuously examine the patient's cardiac rhythm over an extended period of time during normal routine activity, including any physical and psychological changes.

Bradycardia,
Cardiac arrest
VPC frequency and patterns.
Cardiac rhythm during normal activity.

HOW DANGEROUS ARE PVCS?

- The risk of ventricular premature contraction depends on the setting in which it occurs. It is seen in several near normal individuals without any other structural heart disease. If they are infrequent, they may not be of much significance and left alone. But if they occur in large numbers, in rapid succession and in different shapes, more dangerous forms of abnormal heart rhythms like *ventricular tachycardia* or *ventricular fibrillation* may occur.
- PVCs are more dangerous in the presence of structural heart disease, more so in the presence of reduced pumping function of the heart (*left ventricular dysfunction*). VPCs occurring in those with electrical disorders of the heart are also more risky.

CAN YOU COUNT THE TOTAL NUMBER OF VPCS IN A DAY?

- It is impossible to manually count the number of VPCs in a day because the total number of heart beats in a day nears about hundred thousand. Automatic counting is possible using a *Holter monitor* which can record ECG data for 24-48 hours and analyze it using a computer program in the *Holter analyzer*. Some consider more than 10% PVC among the total beats as the significant threshold level for active management.

PVCs

它可能反映潛在的結構性心臟病，並在某些情況下引發更嚴重的心律不整或心臟衰竭。

⚠️ 高風險 PVC 的特徵

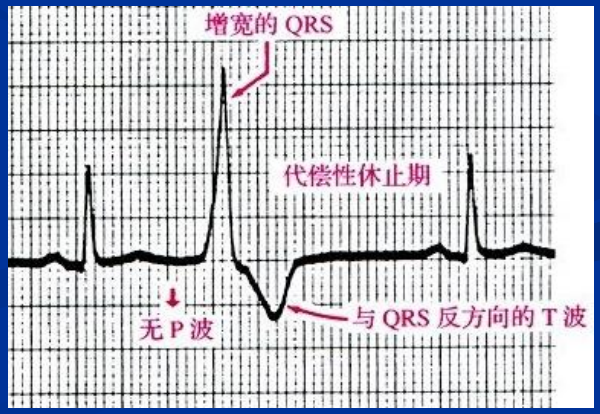
特徵	臨床意義
成群出現（Bigeminy, Trigeminy）	增加心律不整風險
多型性 PVC	可能來自多個異位起搏點，提示心室異常
R-on-T 現象	PVC 落在 T 波上，可能引發心室顫動
PVC 負荷高（>10%）	可能導致心肌病變

🧠 為什麼 PVC 是危險因素？

1. **可能是心臟病的早期警訊**
   - PVC 有時出現在**冠心病、心肌病、心臟瓣膜病**或**遺傳性心律失常症候群**患者身上。[1]
   - 若 PVC 頻繁或成群出現，可能提示心室有異常傳導或結構改變。
2. **可能引發更嚴重的心律不整**
   - 在某些高風險個體中，PVC 可能演變為**心室頻脈（VT）或心室顫動（VF）**，導致猝死。
   - 特別是在**左心室功能不全**或**心肌病變**患者中，PVC 的存在需高度警覺。
3. **可能影響心臟功能**
   - 長期頻繁 PVC（如每日超過 10,000 次）可能導致**心室收縮功能下降**，形成「PVC-induced cardiomyopathy」。
   - 這種情況可逆，但需及早發現與治療。
4. **可能造成症狀與生活品質下降**
   - 雖然許多 PVC 患者無症狀，但部分人會出現**心悸、胸悶、頭暈、疲勞**等症狀。[2]
   - 若症狀明顯，需進一步評估與處置。

🩺 臨床處理建議

- **心電圖與 24 小時心律監測**：評估 PVC 的頻率與型態
- **心臟超音波**：排除結構性心臟病
- **電解質與藥物檢查**：排除誘發因素（如低鉀、藥物中毒）
- **生活方式調整**：減少咖啡因、酒精、壓力
- **藥物或導管消融治療**：針對症狀嚴重或心室功能受損者



Open Access

Ability of a 5-Minute Electrocardiography (ECG) for Predicting Arrhythmias in Doberman Pinschers with Cardiomyopathy in Comparison with a 24-Hour Ambulatory ECG

G. Wess, A. Schulze, N. Geraghty, K. Hartmann

First published: 01 March 2010 | https://doi.org/10.1111/j.1939-1676.2010.0477.x | Citations: 30

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- Results: Holter examinations revealed >100 VPCs/24 hours in 204/875 examinations. At least 1 VPC during a 5-minute ECG was detected in 131 (64.2%) of these 204 examinations. No VPCs were found in the 5-minute ECG in 73 (35.8%) examinations of affected Doberman Pinschers. A 5-minute ECG with at least 1 VPC as cut-off had a sensitivity of 64.2%, a specificity of 96.7%, a positive predictive value of 85.6% and a negative predictive value of 89.9% for the presence of >100 VPCs/24 hours.
- Conclusions and Clinical Importance: A 5-minute ECG is a rather insensitive method for detecting arrhythmias in Doberman Pinschers. However, the occurrence of at least 1 VPC in 5 minutes strongly warrants further examination of the dog, because specificity (96.7%) and positive predictive value (85.6%) are high and could suggest occult cardiomyopathy.

Use of NT-proBNP for evaluation of potential CVD

Drugs & Diseases > Cardiology

Ventricular Premature Complexes Workup

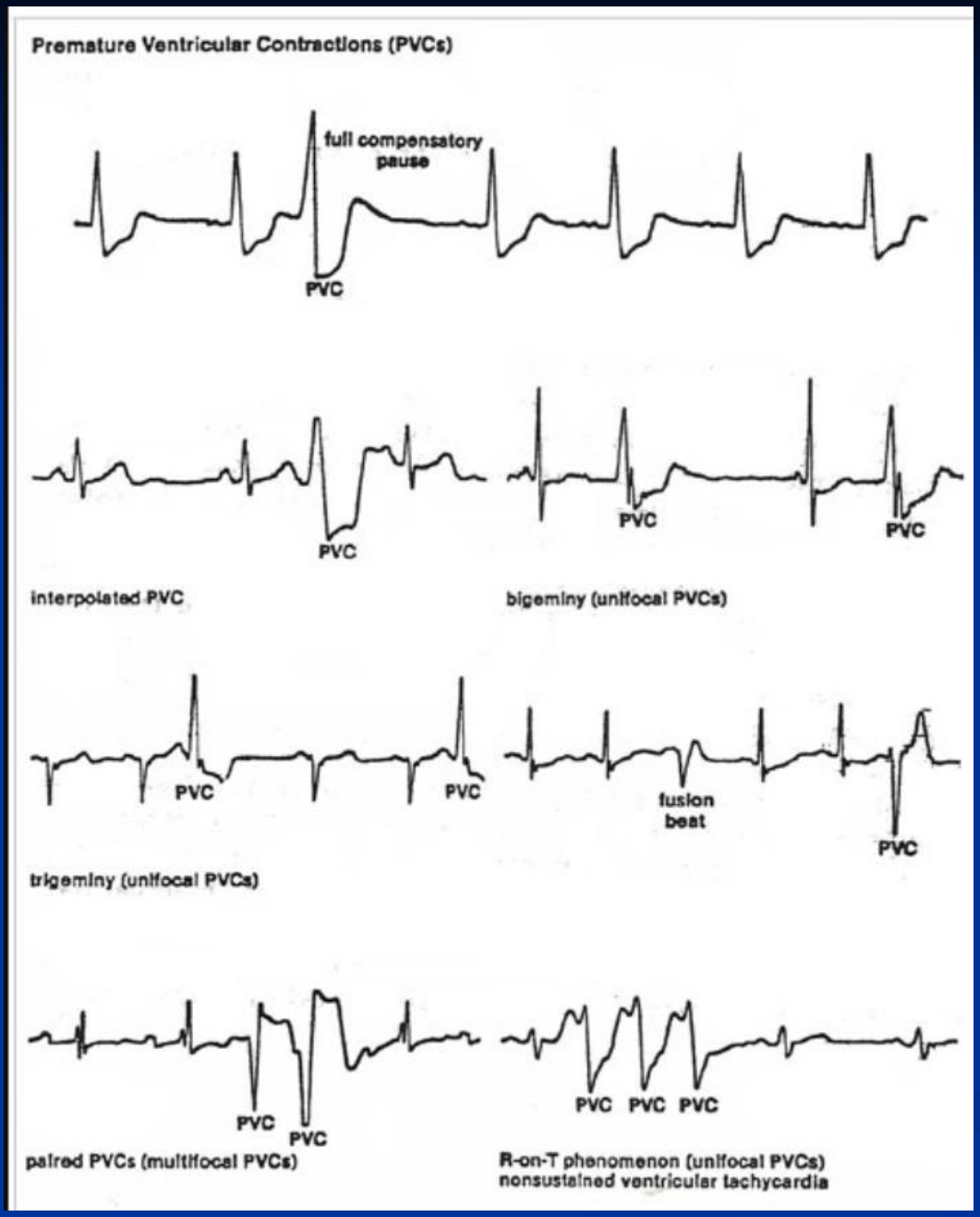
Updated: Nov 26, 2016 | Author: Jatin Dave, MD, MPH; Chief Editor: Jose M Dizon, MD more...

- Overview
- Presentation
- DDx
- Workup
  - Approach Considerations

Approach Considerations

Obtain laboratory studies to evaluate or correctable causes of VPCs, such as medications, electrolyte disturbances, infection, and myocardial ischemia or MI. Obtain serum electrolyte and magnesium levels.

A 2016 population-based study of 498 individuals with ventricular ectopy activity, including PVCs, found that elevated levels of N-terminal pro-B-type natriuretic peptide (NT-proBNP) were independently associated with ventricular ectopy but not with levels of high sensitivity-troponin I (hs-TnI) or hs-C-reactive protein (hs-CRP). [13] Obtaining levels of NT-proBNP may help in the evaluation of potential adverse cardiovascular events in persons with asymptomatic ventricular arrhythmias



VPC and R-on-T

- Unifocal VPC (same pattern)
- Multifocal VPC (different patterns)
- **R- on-T** phenomenon → VT

12, All abnormal lab. Data related to disease activity should be followed up.

- During hospitalization,
- **Follow up within 3 days** in active diseases.—— determine the disease activity
- If still abnormal, follow up again within 3-4 days.
- If it is increasing in severity, check it within 1-2 days. It is a disease activity parameter.
- **Recheck it just before discharge and it is considered to be a discharge parameter.**

13 Explain goal (first goal and second goal) during VS round.

- Explain goal (first goal and second goal) during VS round.
- Goal must be expressed by **quantity of data**.
- First goal (Primary goal) .解除症狀恢復正常生命跡象、度過難關.recovery from shock.
- **Consciousness : clear, BP: > 100 mm Hg,**
- **PR: 52-100/.min. RR: Smooth, Oxygenation : full (99-100 %)**
- **Second gaol: Discharge parameters,**
- **沒有症狀+符合出院指標值**

Second gaol: Discharge parameters, 沒有症狀+符合出院指標值(data)

- **GI bleeding**
- 1. No more bleeding—stool
- became yellowish,
- No hematemesis,
- NO bloody stool
- **2. HB and Ht : almost no changes in three tests.**
- **3. Hb > 10 gm/dl,.**
- 4. Alert. And comfortable.
- 5. **Stable vital signs (BP>100,**
- **heart rate : < 100/min.)**

- **Obstructive jaundice due to impacted gall stone at the papilla,.**
- **Reduction of jaundice after removal of impacted stones (by ERCP and papillotomy or other procedures)**
- **Serum bilirubin< 3.0 (from >10)**
- **< 2.5 (from 9.9-5 mg/dl)**
- **<2.0 (from 5 mg/dl or less)**
- **GGT < 100, CRP down to 3.0 or less**
- **CBC : normalized**
- **(WBC< 10,000, Hb : >12gm/dl.)**
- **No complications after procedures.**

No fever, no pancreatitis, no shock

Conclusions (2025.11.07)

- Quantitation analysis of **clinical information** is important.(*symptoms, signs and lab data)
- It may be used as **disease parameter**. Then it could be used to guide clinical management,
- It may be used as a **discharge parameter**. Only the parameter is reduced to normal range (or within 1.5x normal upper range.) The patient can be discharged safely and the short term readmission rate could be reduced.
- **Follow up all abnormal data** is of importance.