

實證醫學 病例討論報告

Evidence-Based Medicine

科別：新生兒科 

職級：實習醫學生 Clerk 1

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指導老師：楊生滿 醫師





Outline

- Clinical scenario-臨床場景
- Asking-提出問題
- Acquire-搜尋資料
- Appraisal-嚴格評讀
- Apply-臨床應用
- Audit-自我評估



Clinical scenario

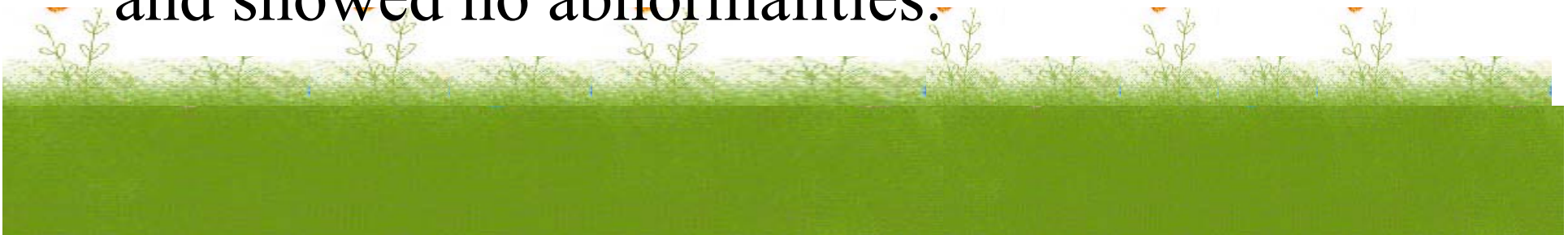
1. Patient profile 病人基本資料及主訴
2. Assessment 評估（包含症狀、理學檢查、實驗室檢查、影像學檢查）
3. Treatment 治療方式及對治療的反應
4. Plan 後續治療計畫





Patient Profile (1)

- This 1-hour-old female neonate was a preterm baby (twin A) with **GA 28⁺⁵wks**, **BBW 1104g**, **AGA**, **Apgar score(1'/5'/10'):5/6/7**.
- She was delivered by a 29-year-old Taiwanese mother (G₄P₂A₂) via C/S due to **preterm premature rupture of membrane**. She received regular prenatal examination at 正薪 hospital and showed no abnormalities.





Patient Profile (2)

- At OR, she delayed her first cry which was weak. **Bradycardia** was noticed initially with **generalized cyanosis**. Ambu bagging was given and then heart rates increased. However, **cyanosis, grunting** and **subcostal retraction** were noted. Endotracheal tube was inserted and we kept ambu-bagging to NICU .





Assessment(1)

- **Respiratory Distress Syndrome**, grade 2
 - Physical Examination finding:
 - Breathing sound: bilateral coarse
 - Generalized cyanosis, grunting, subcostal retraction
 - Laboratory finding(4/22)
 - ABG: pH 7.242, pCO₂ 59.7, pO₂ 132.9
 - a/A ratio=0.93
 - Chest x-ray finding(4/22)
 - Ground-glass appearance and air-bronchogram





Assessment(2)

■ Neonatal Sepsis

– Laboratory finding:

- WBC(4/22):9600/ul, WBC(4/25):6700/ul

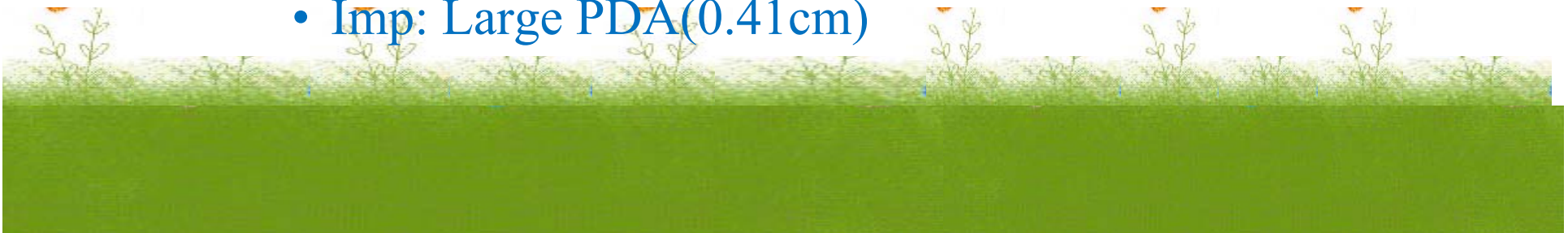
■ Patent Ductus Arteriosus

– Physical Examination finding(4/28):

- Heart sound: pansystolic murmur and S3 gallop, thrill over left 2nd intercostal space

– Cardiac echo(4/24):

- Imp: Large PDA(0.41cm)





Treatment

■ For **Respiratory distress syndrome**

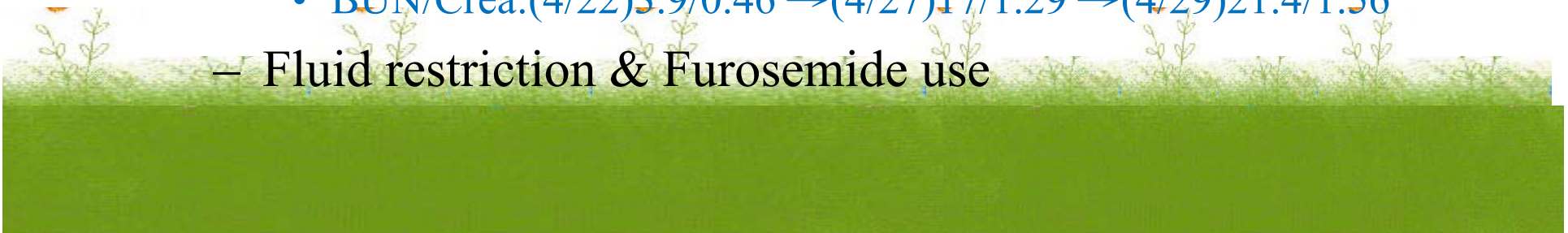
- Endotracheal CPAP
- Close monitor of pH, PO₂, PCO₂, SaO₂

■ For **Neonatal sepsis**

- High dose ampicillin/cefotaxime for 14 days

■ For **Patent ductus arteriosus**

- Indomethacin 0.21 vial IVD 30 min/3 days
 - Little response to indomethacin.
 - BUN/Crea:(4/22)3.9/0.46 →(4/27)17/1.29 →(4/29)21.4/1.56
- Fluid restriction & Furosemide use





Plan

- Consider Ibuprofen use instead of Indomethacin for ductus closure.
- Consult pediatric cardiologist and cardiovascular surgeon for evaluation of surgery ligation.



Asking-提出臨床問題

1. Background questions

- (1) question
- (2) answer
- (3) apply

2. Foreground questions

- (1) PICOT
- (2) search data
 - a. Summary
 - b. Synopses
 - c. Synthesis
 - d. Study





Background question

Answer (source: uptodate)

- **Question:** **What** are the treatments for patients with patent ductus arteriosus?
Pharmacologic
• Indomethacin
• Ibuprofen

■ Surgery

- Surgical ligation
- Thoracoscopic surgical ligation

■ Percutaneous occlusion

- Coil occlusion
- Amplatzer device
- Rashkind umbrella device





Foreground Question

- For medical treatment of symptomatic PDA, which drug has more success rate of ductus closure and less complication rates for preterm newborns, Indomethacin or Ibuprofen?





PICOT

P atient	Preterm neonate with symptomatic PDA
I ntervention	Indomethacin
C ompare	Ibuprofen
O utcome	Rate of ductus closure Complication rate
T ime	Not defined





Acquire-搜尋最有用的資料

- Search strategy: 5S model
 - 先從已經過評讀的database開始找起(system, synopses, synthesis)
 - 最後再找尚未經過嚴格評讀的study

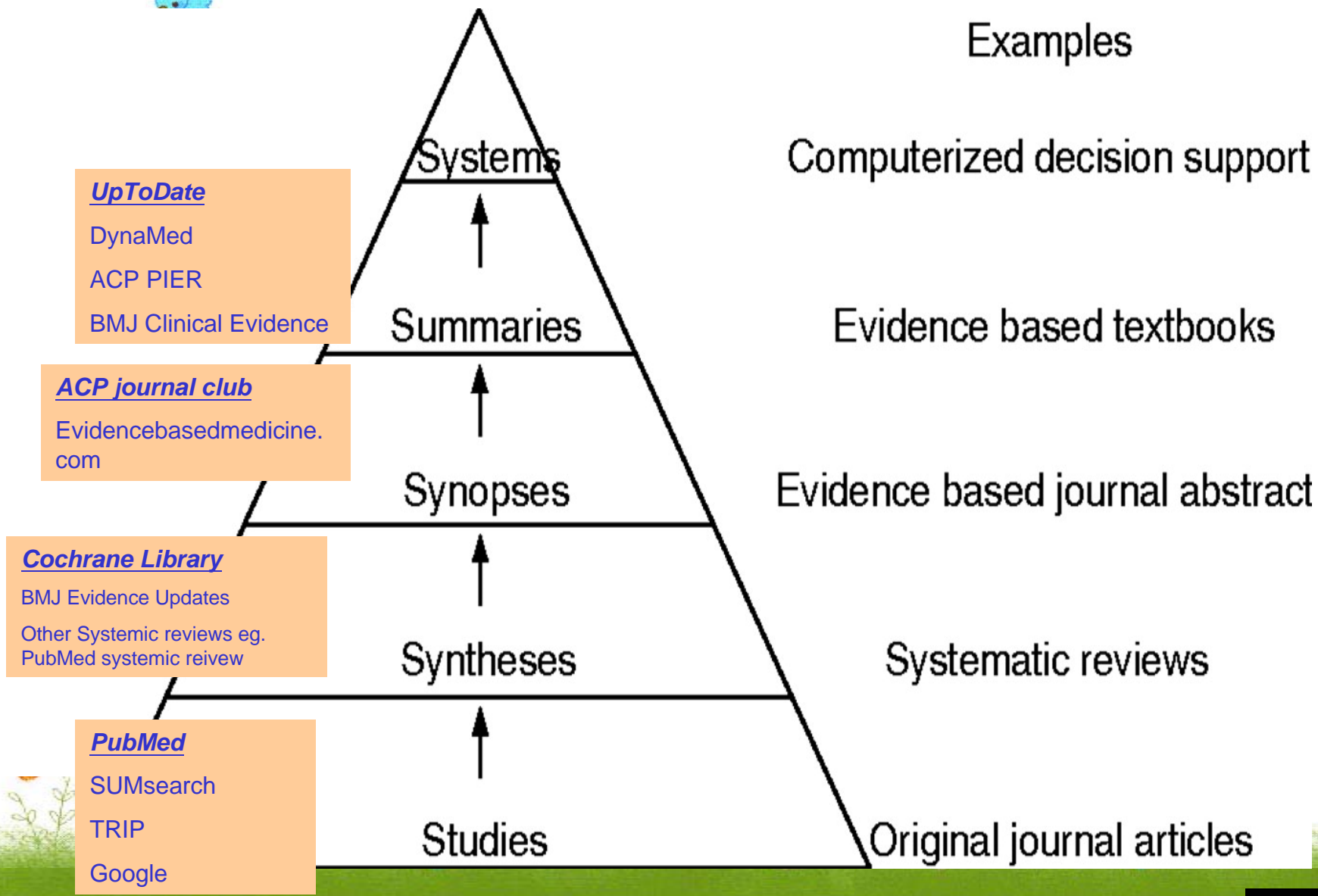




The "5S" levels of organisation of evidence from healthcare research

Brian Haynes, R Evid Based Med 2006;11:162-164

Examples





Summaries

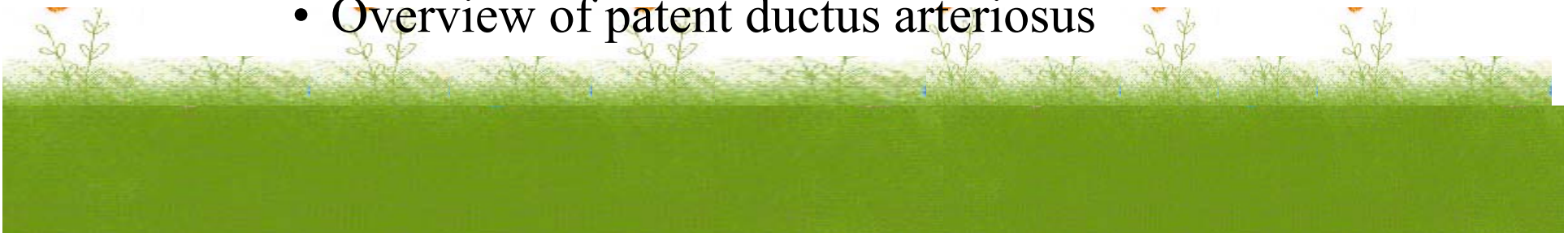
- **UpToDate**

- **Key words:**

- Patent ductus arteriosus
 - Indomethacin
 - Ibuprofen

- **Article title:**

- Patent ductus arteriosus in premature infants
 - Overview of patent ductus arteriosus





Contents- Patent ductus arteriosus in premature infants

- In a study of 148 preterm infants who were randomly assigned to three intravenous doses of indomethacin or intravenous ibuprofen, the rates of PDA closure and need for repeat treatment were similar. Oliguria occurred less commonly with ibuprofen (7 versus 19 %), although other complications were not different.
- Similar results were seen in a randomized trial in extremely premature infants with a gestational age ≤ 28 weeks randomly assigned indomethacin or ibuprofen. Closure rates were 88 % in both groups and oliguria was less common with ibuprofen (7 versus 15 %).



Apply the Summary to the Patient

- Since the patient has **no contraindications** of indomethacin use and **similar rates of ductus closure** with indomethacin or ibuprofen, we may consider ibuprofen for the patient to protect her kidneys.





Synopses

- **ACP Journal Club**
 - **Key words:**
 - Patent ductus arteriosus
 - Indomethacin
 - Ibuprofen
 - **Article title:**
 - No matches





Syntheses



- **Cochrane Library**

- **Key words:**

- Analgesics, Non-Narcotic [therapeutic use]; Anti-Inflammatory Agents, Non-Steroidal [therapeutic use]; Ductus Arteriosus, Patent [diagnosis]; Ductus Arteriosus, Patent [drug therapy]; Ibuprofen [therapeutic use]; Indomethacin [therapeutic use]

- **Article title:**

- Ibuprofen for the treatment of patent ductus arteriosus in preterm and/or low birth weight infants(2008)





Contents- Ibuprofen for the treatment of patent ductus arteriosus in preterm and/or low birth weight infants

- **Aim**

- To determine the effectiveness and safety of **ibuprofen** compared to other cyclo-oxygenase inhibitors (including **indomethacin**, mefenamic acid) for closing a PDA in preterm and/or low birth weight infants.





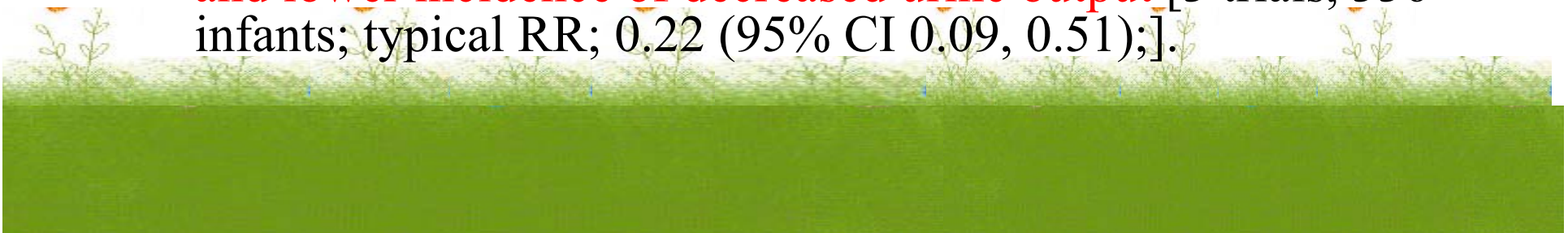
• Method

- Sixteen studies enrolling **876 infants** who presented until August 2007 were identified.
- Selection criteria
 - Design: RCT or quasi-RCT
 - Population: **Preterm (< 37 wks GA)** or low birth weight infants (< 2500 g) with a clinically or echocardiographically diagnosed PDA
 - Intervention: Administration of ibuprofen (orally or intravenously) for the closure of PDA
 - Outcomes: **failure to close a PDA**, mortality, intraventricular haemorrhage (IVH), periventricular leukomalacia (PVL), NEC, decreased urine output, retinopathy of prematurity (ROP), chronic lung disease (CLD), sepsis, pulmonary hemorrhage, pulmonary hypertension, duration of supplementary oxygen, duration of mechanical ventilation, duration of hospital stay, and serum creatinine levels following treatment.



• Result

- For the **primary outcome** (failure of ductal closure), there was **no statistically significant difference** between ibuprofen and indomethacin groups [typical RR 0.99 (95% CI 0.78, 1.27)].
- There were **no statistically significant differences** in mortality, reopening of the ductus, need for surgical duct ligation, duration of ventilator support, duration of supplementary oxygen, pulmonary hemorrhage, pulmonary hypertension, CLD, IVH, PVL, NEC, intestinal perforation, gastrointestinal bleed, time to full enteral feeds, time to regain birth weight, ROP, sepsis, duration of hospitalization.
- **Ibuprofen treatment was associated with statistically significantly lower serum creatinine levels after treatment** (6 trials, 336 infants; WMD - 8.2 (95% CI -13.3, -3.2) mmol/L **and lower incidence of decreased urine output** [3 trials, 336 infants; typical RR; 0.22 (95% CI 0.09, 0.51);].





- **Conclusion**

- Ibuprofen is as effective as indomethacin at closing a PDA in a very preterm or very small newborn, and has fewer adverse effects on kidney function.
- Ibuprofen may be associated with an increased risk of pulmonary complications including chronic lung disease and rarely pulmonary hypertension





Studies

- Pubmed

- Key words:

- Patent ductus arteriosus AND Ibuprofen AND Indomethacin

- Limits:

- Publication Date from 2007/08/01 to 2009/05/09, Humans, Randomized Controlled Trial, English, Newborn: birth-1 month

- Article title:

- Comparison of ibuprofen and indometacin for early-targeted treatment of patent ductus arteriosus in extremely premature infants: a randomised controlled trial. Arch Dis Child Fetal Neonatal Ed. 2008 Mar;93(2):F94-9. Epub 2007 Sep 3.
 - Comparison of oral ibuprofen and indomethacin therapy for patent ductus arteriosus in preterm infants. Zhongguo Dang Dai Er Ke Za Zhi. 2007 Oct;9(5):399-403.
 - Comparison of oral ibuprofen and indomethacin on closure of patent ductus arteriosus in preterm infants. East Mediterr Health J. 2008 Mar-Apr;14(2):360-5.





Contents

Comparison of ibuprofen and indometacin for early-targeted treatment of patent ductus arteriosus in extremely premature infants

- **Aim**

- To conduct a RCT to better address the efficacy and safety of ibuprofen compared with indometacin for patent ductus arteriosus (PDA) closure in **extremely premature infants**.

- **Method**

- **119 infants (GA < or = 28 weeks) with RDS and PDA confirmed by echocardiography** were randomly assigned to receive either indometacin (0.2 mg/kg) or ibuprofen (10 mg/kg), starting at <24 hours of life, followed by half these first doses within 48 hours at 24-hour intervals if indicated by echocardiographic PDA flow pattern.





- **Results**

- The PDA closure rate and the doses of drug were similar in both groups.
- No significant difference was found in the numbers of infants requiring surgical ligation, and the levels of post-treatment serum creatinine and urea nitrogen between the two groups.
- More infants treated with indomethacin tended to develop oliguria than those treated with ibuprofen, however there were no significant differences in side effects or complications between the two groups.

- **Conclusions**

- Ibuprofen is as effective as indometacin for the early-targeted PDA treatment in extremely premature infants, without increasing the incidence of complications.





Contents

Comparison of oral ibuprofen and indomethacin therapy for patent ductus arteriosus in preterm infants.

- **Aim**

- to examine and compare the efficacy and safety of **oral ibuprofen** and **oral indomethacin** for the treatment of PDA in preterm infants.

- **Methods**

- 36 infants (**GA<34 wks**) with echocardiographically-confirmed PDA were enrolled in this study and randomly administered with three oral doses of either indomethacin (0.2 mg/kg, at an interval of 24 hrs) or ibuprofen (a first dose of 10 mg/kg, followed at an interval of 24 hrs by two doses of 5 mg/kg each) (n=18 each group). The rate of ductal closure, side effects, complications, and the Infants' clinical course were recorded.





• Results

- The ductus was closed in all of 18 patients (100%) in the ibuprofen group and in 15 (83.3%) patients in the indomethacin group ($P > 0.05$). **There were no significant differences in the levels of serum blood urea nitrogen and creatinine between the two groups before and after treatment.**
- NEC occurred in 3 patients in the indomethacin group and none in the ibuprofen group ($P < 0.05$).
- The survival rate at 1 month after treatment was 94% (17/18) in both groups. One infant in the ibuprofen group died from sepsis and one in the indomethacin group died as a result of NEC.

• Conclusion

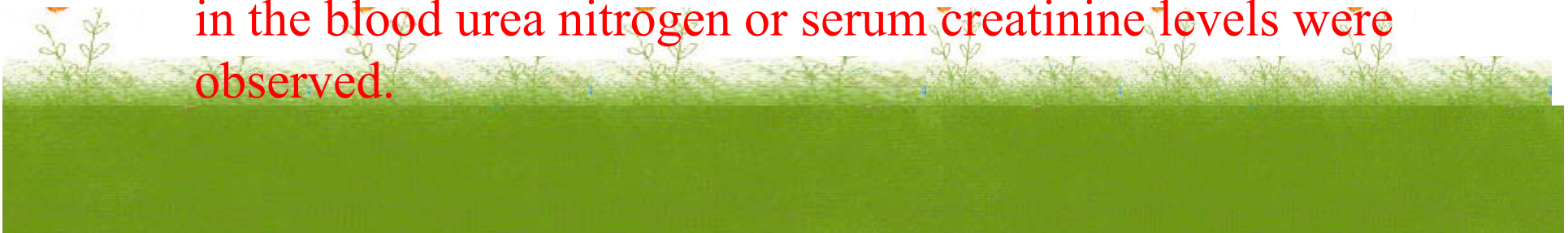
- **Oral ibuprofen is as effective as oral indomethacin for the treatment of PDA in preterm infants.**
- **Oral ibuprofen therapy is associated with a lower incidence of NEC.**





Content-Comparison of oral ibuprofen and indomethacin on closure of patent ductus arteriosus in preterm infants.

- In this study of the therapeutic effects of oral treatments, 20 preterm infants were randomized to oral ibuprofen (1 x 10 mg/kg, then 2 x 5 mg/kg at 24-hour intervals) or oral indomethacin (3 x 0.2 mg/kg at 24-hour intervals).
- Complete ductal closure was seen in 7/10 of the indomethacin and 8/10 of the ibuprofen group. **The difference was not significant.** There was no reopening after the ductal closure during the hospital stay or in the follow-up visits in either group and **no excessive increases in the blood urea nitrogen or serum creatinine levels were observed.**



Appraisal-嚴格評讀

Comparison of ibuprofen and indometacin for early-targeted treatment of patent ductus arteriosus in extremely premature infants

Su BH, Lin HC, Chiu HY, Hsieh HY, Chen HH, Tsai YC

Arch Dis Child Fetal Neonatal Ed. 2008 Mar;93(2):F94-9. Epub 2007 Sep 3





A nswer	文獻試圖回答什麼問題？	是否回答我的問題？
A uthor	作者是誰，是否為這方面的專家	有無利益衝突
M ethod	RCT, cohort, case-control, case series ,	case report, expert opinion
P atient	是否隨機取樣 (randomization)	取樣是否具代表性 (representative)
I ntervention	是否有清楚的描述(Ascertain) 是否實際可行	
C omparasion		
O utcome	是否有客觀雙盲的測量 (MBO)	是否有統計學或臨床上的意義？
T ime	是否清楚描述研究取樣、操作、結果測量的時間點，追蹤時間是否夠長	



A

- What does this paper try to answer?
 - the efficacy and safety of ibuprofen compared with indometacin for patent ductus arteriosus (PDA) closure in extremely premature infants.
- Does this paper **answer** your question?
 - Yes.





A

- Is the **author** an expert of the field?
 - Yes.
- Is there any conflict of interest?
 - Not mentioned





Method:證據等級

Level	與[治療/預防/病因/危害]有關的文獻
1a	用多篇RCT所做成的綜合性分析(SR of RCTs)
1b	單篇RCT(有較窄的信賴區間)
1c	All or none
2a	用多篇世代研究所做成的綜合性分析
2b	單篇cohort及低品質的RCT
2c	Outcome research / ecological studies
3a	SR of case-control studies
3b	Individual case-control studies
4	Case-series(poor quality :cohort / case-control studies)
5	沒有經過完整評讀醫學文獻的專家意見



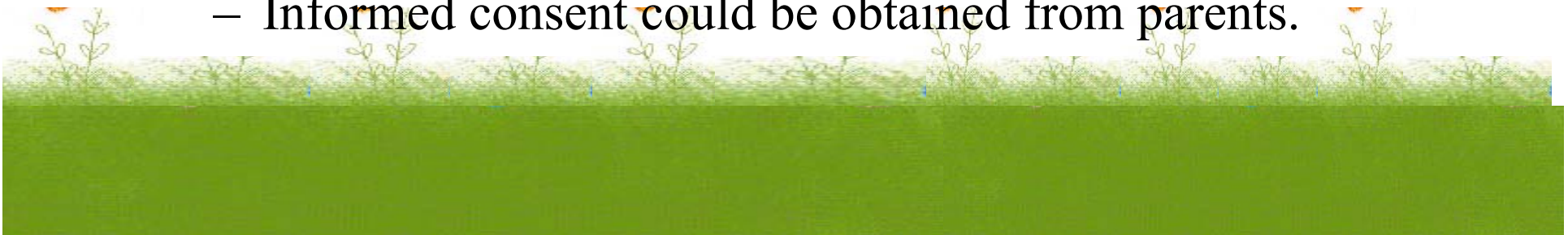
Grades of Recommendation

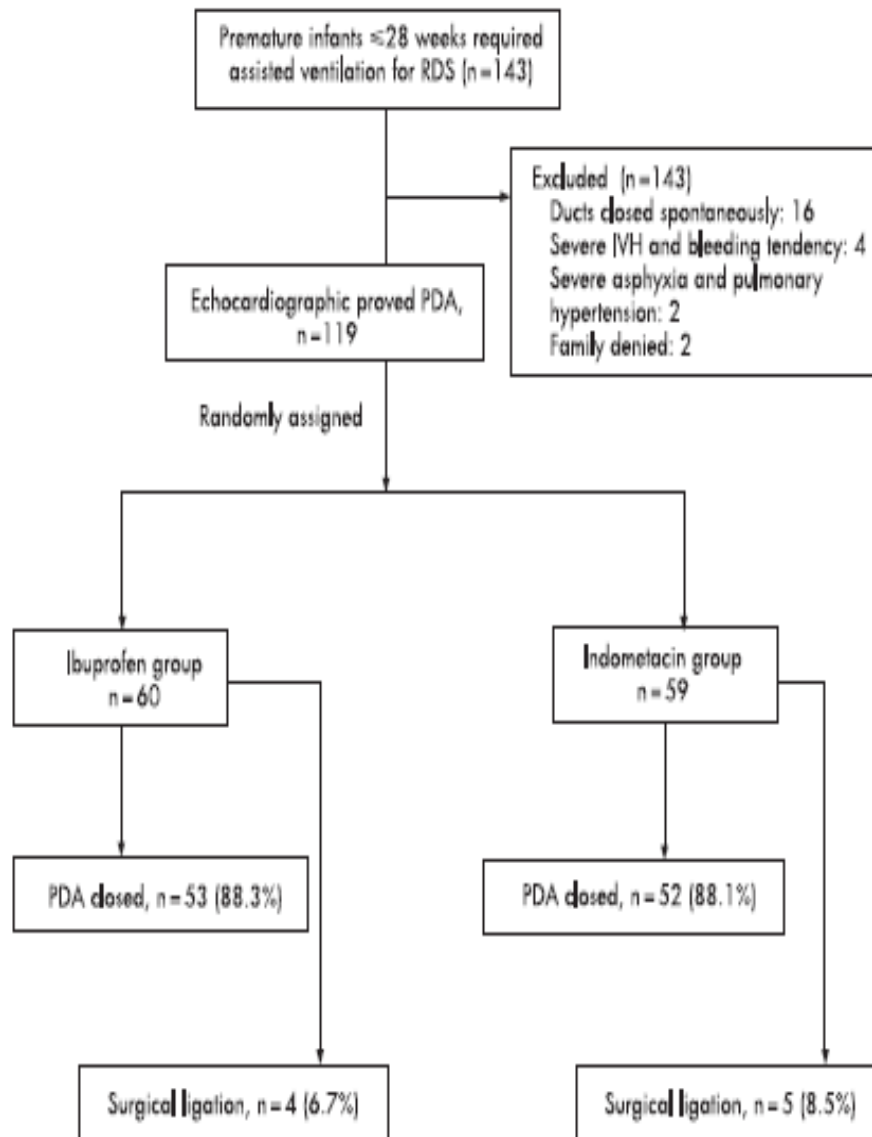
A	consistent level 1 studies
B	consistent level 2 or 3 studies <i>or</i> extrapolations from level 1 studies
C	level 4 studies <i>or</i> extrapolations from level 2 or 3 studies
D	level 5 evidence <i>or</i> troublingly inconsistent or inconclusive studies of any level



P

- Patients included into the study met the following criteria:
 - $GA \leq 28$ wks
 - RDS requiring assisted ventilation
 - A PDA without other cardiac anomalies confirmed by echocardiography within 24 hours after birth
 - No severe congenital anomalies or lethal cardiopulmonary conditions
 - Informed consent could be obtained from parents.





- 143 patients were eligible for the study.
 - 16 patients had to be excluded because of ductus closure spontaneously.
 - In 4 patients, pharmacologic treatment was not possible due to severe IVH and bleeding tendency.
 - 2 of them had severe asphyxia and pulmonary hypertension.
 - Family denied in 2 patients.
- The study described the findings in 119 patients (67 male and 52 female, mean GA 25 wks, range 23~28)



- 是否隨機取樣(Randomized)?
 - Yes.
- 取樣是否具代表性(Representative)?
 - Yes.





I

- **Indomethacin:** dosage was 0.2 mg/kg (1 ml) as the initial dose and then 0.1 mg/kg in infants less than 48 hours old, 0.2 mg/kg in infants over 48 hours at 24-hour intervals as indicated by PDA flow pattern.





C

- **Ibuprofen:** dosage was 10 mg/kg (1 ml) and then 5 mg/kg at 24-hour intervals as indicated by PDA flow pattern.





- 是否有清楚的描述(Ascertain)?

–Yes.

- 是否實際可行?

–Yes.





O

- 是否有客觀雙盲的測量(MBO)?
 - Yes. The drug was prepared and dispensed through the hospital pharmacy department and the attending doctors were unaware of the drug used.





- 是否有統計學或臨床上的意義？
– Yes/No.

Table 2 Efficacy of treatment*

	Ibuprofen group (n = 60)	Indometacin group (n = 59)
Age at start of treatment (hours)	8 (4–21)	8 (3–24)
Doses of medicine (number)	1 (1–6)	2 (1–6)
PDA closed after 1 dose	32 (53.3)	31 (52.5)
PDA closed after 2 doses	10 (16.7)	11 (18.6)
PDA closed after 3 doses	3 (5)	3 (5.1)
PDA closed after 4 doses	2 (3.3)	1 (1.7)
PDA closed after 5 doses	2 (3.3)	2 (3.4)
PDA closed after 6 doses	4 (6.7)	4 (6.8)
Total PDA closed	53 (88.3)	52 (88.1)
Reopening rates	9 (15)	8 (13.6)
Ligation rates	4 (6.7)	5 (8.5)

*Values are median (range) or number (%). Percentages were calculated on total number of infants in each treatment group. There were no significant differences between the groups.

Table 3 Outcome and complications of infants according to treatment group*

Complications	Ibuprofen group (n = 60)	Indometacin group (n = 59)
Death within 30 days	7 (11.7)	7 (11.9)
Hypoglycaemia	35 (58.3)	39 (66.1)
Necrotising enterocolitis	6 (10)	7 (11.9)
Localised bowel perforation	5 (8.3)	5 (8.5)
Gastrointestinal bleeding	10 (16.7)	10 (16.9)
Sepsis (culture proved)	8 (13.3)	9 (15.3)
Intraventricular haemorrhage (IVH)		
IVH progression to grade 3	2 (3.3)	3 (5.1)
IVH progression to grade 4	1 (1.7)	1 (1.9)
IVH (grades 3 and 4)	5 (8.3)	5 (8.5)
Periventricular leucomalacia	4 (6.7)	3 (5.1)
Days of ventilation	4 (1–62)	8 (1–72)
Days of oxygen	57 (1–132)	57 (1–148)
Bronchopulmonary dysplasia at 36 weeks	18 (30)	19 (32.2)
Days to full enteral feeding	38 (14–73)	37 (16–59)
Days to regain birth weight	33 (11–50)	31 (17–53)
Renal outcomes		
Oliguria (<1 ml/kg/h)	4 (6.7)	9 (15.3)
Pretreatment serum creatinine ($\mu\text{mol/l}$), mean (SD)†	62.8 (19.4)	66.3 (27.4)
Pretreatment serum urea nitrogen (mmol/l), mean (SD)‡	3.78 (2.1)	3.64 (2.2)
Post-treatment serum creatinine ($\mu\text{mol/l}$), mean (SD)†	82.2 (22.1)	76.1 (22.9)



T

- 是否清楚描述研究取樣、操作、結果測量的時間點，追蹤時間是否夠長？
 - 取樣時間: from Feb. 2004 to Oct. 2006
 - 操作時間: The medication was intravenously infused continuously over 15 minutes.
 - 結果測量的時間點: Renal function was evaluated by daily assessment of urine output, serum creatinine concentration, and serum ureanitrogen before and after treatment. Brain sonograms were performed in all infants before the treatment and at 3, 7, 14 and 28 postnatal days, or if clinically indicated for assessment of IVH and PVL.

使用 Work Sheet 嚴格評讀





Therapy Worksheet

Are the results of this single preventive or therapeutic trial valid?	
Was the assignment of patients to treatments randomised? 是否隨機 -and was the randomisation list concealed? 隨機分配的實驗內容是否對篩選實驗對象的人隱藏?	Yes. Yes.
Were all patients who entered the trial accounted for at its conclusion? -and were they analysed in the groups to which they were randomised? 是不是每一個進入到實驗中的個案都有列入結果的分析中? 有多少LOSS? 是否按原先所分配的組別分析?	Yes.
Were patients and clinicians kept “blind” to which treatment was being received? 是否雙盲?	Yes.
Aside from the experimental treatment, were the groups treated equally? 除了實驗所用的治療外, 二組在其他方面的治療是否一樣?	Not mentioned.
Were the groups similar at the start of the trial? 二組在各方面的基本特質是否接近?	Yes.



Are the valid results of this randomised trial important?

Failure of close PDA		Relative Risk Reduction RRR	Absolute Risk Reduction ARR	Number Needed to Treat NNT
Indomethacin CER	Ibuprofen EER	$\frac{CER - EER}{CER}$	CER - EER	1/ARR
11.86%	11.67%	1.6%	0.19%	527

Oliguria		Relative Risk Increase RRI	Absolute Risk Increase ARI	Number Needed to Harm NNH
Indomethacin CER	Ibuprofen EER	$\frac{CER - EER}{CER}$	CER - EER	1/ARI
15.25%	6.67%	56.26%	8.58%	12



Can you apply this valid, important evidence about a treatment in caring for your patient?

Do these results apply to your patient?

Is your patient so different from those in the trial that its results can't help you? 我所面對的個案和證據中的有何不同?

沒有不同 → 直接運用實驗的結果
有不同 → 必須予以修正

No

How great would the potential benefit of therapy actually be for your individual patient?

Method I: **f**

我的個案在不治療的情況下得到疾病的機會是證據中個案的f倍

Risk of the outcome in your patient, relative to patients in the trial. expressed as a decimal: _____

$NNT/F = \frac{\quad}{\quad} = \quad$

(NNT for patients like yours)

Method II: **1 / (PEER x RRR)**

從其他證據, 或自己的統計中得到的疾病率

Your patient's expected event rate if they received the control treatment: PEER: _____

$1 / (PEER \times RRR) = 1 / \frac{\quad}{\quad} = \quad$

(NNT for patients like yours)

Are your patient's values and preferences satisfied by the regimen and its consequences?

Do your patient and you have a clear assessment of their values and preferences? 考慮個案的偏好與價值觀

Yes.

Are they met by this regimen and its consequences? 和個案討論治療的作用與副作用

Yes.

Apply-臨床應用

結合醫學倫理方法

將study的結果應用在病人身上





醫療現況

根據現有的證據顯示:Indomethacin及Ibuprofen在於關閉PDA並無顯著上的差異，然而Indomethacin對於腎臟功能有較多的影響。

病人意願

病童家屬在主治醫師充份解釋病情及可能治療後表示願意積極處置。

生活品質

早產兒除了PDA外還有其他的問題需要處理，要在其他器官功能尚未成熟之時保護其他器官並做適當的處理，才能使病人健康成長。

社會脈絡

病童家庭雖然有兩個早產兒，然而經濟穩定，較無受限於經濟壓力。



Conclusion & Discussion

■ Evidence: from summaries to study

- Things we can be sure.
- Things still stay unknown.

■ Back to the patient

- After poor response to Indomethacin
- Her twin sister

■ There's still questions.



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？有，因為可以提供更安全且更有效的治療方法。
- 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，但未全能概括。
- 我是否清楚的知道自己問題的定位？並據以提出問題？
知道，屬於治療範疇
- 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**
- 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？**中等程度**





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，但仍有不了解的項目。

■ 我是否了解Number need to treat 的意義？是

■ 我是否了解Likelihood Ratios的意義？

約略了解

■ 我是否了解worksheet每一項的意義？

不是每一項都了解。

■ 評讀後，我是否做出了結論？是



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？**否**
- 我是否能將搜尋到的結論如NNT,LR用病人聽得懂的方式解釋給病人聽？
可以，但還無法解釋。
- 當搜尋到的最佳證據與實際臨床作為不同時，我如何解釋？**同上。**





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，目前證據未改變臨床策略。
- 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？
約10個小時。
- 我是否覺得這個進行實證醫學的過程是值得的？值得，疑問得到解答，也更熟悉EBM的操作。
- 我還有那些問題或建議？評讀的 worksheet 不甚熟練。



Thanks for your Listening.

