Challenges in obstetric anaesthesia

Evidence, research & clinical practice

S.M. Yentis

Chelsea & Westminster Hospital
London, UK
Challenges in obstetric anaesthesia

- Evidence
- Research
- Clinical practice
Declarations (or credentials?)

- AAGBI Board
- Research grant reviews
- Clinical + non-clinical research projects
- Editor, *Anaesthesia*
- NIAA Board
- Committee on Publication Ethics Council
- Chair, Riverside Research Ethics Committee
- Medicolegal reports
- Journal article reviews
- Editorial Board *IJOA*
- Hon Sec, OAA
Evidence

• Errors in perception, interpretation, cognition
• Bias
  • methodological
  • presentation
  • publication
  • citation
  • application

80 women for elective CS (epidural):

- bupivacaine 0.5% plain
- bupivacaine 0.5% + adrenaline
- **lidocaine 2% + adrenaline**
- bupivacaine 0.5% + lidocaine 2% + adrenaline

“This study shows that a mixture of bupivacaine and lignocaine provided an excellent alternative to bupivacaine alone, and was superior to 2% lignocaine with adrenaline for elective Caesarean section”
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Bias
- low power
- overstated results
- paper misquoted for the next 15-20 years:
  (i) mixture faster than others
  (ii) elective vs emergency
- nobody could tell which was which
Bias

• I believe Drug A is faster than Drug B
• I use Drug A and it’s fast
  “Good thing I used Drug A; see how fast it is”
• I use Drug A and it’s slow
  “Hmmm… perhaps Drug A isn’t as fast as I think it is”
  “Good thing I used Drug A; if I’d used Drug B it would have been even slower”
Bias

- Errors in perception, interpretation, cognition
- Bias
- Evidence-based medicine
  - “…the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients”  
    Sackett et al, 1996
  - “…a dangerous delusion...a potentially lethal weapon in the hands of misguided regulators and reformers...a fundamentalist cult with evangelical tendencies”  
    Charlton, 1997
Evidence-based medicine

- Errors in perception, interpretation, cognition
- Bias
- Evidence-based medicine
  - “It is surely a great criticism of our profession that we have not organised a critical summary, by specialty or subspecialty, adapted periodically, of all relevant randomised controlled trials.” — Cochrane, 1979
Evidence-based medicine

- Errors in perception, interpretation, cognition
- Bias
- Evidence-based medicine
  - Level 1: systematic review
  - Level 2: randomised controlled trial
  - Level 3: cohort / follow-up study
  - Level 4: case series / case-control study
  - Level 5: ‘mechanism-based reasoning’

www.cebm.net
Evidence-based medicine

- Errors in perception, interpretation, cognition
- Bias
- Evidence-based medicine
  - Level 1: what I believe
  - Level 2: what I believe despite the evidence
  - Level 3: evidence that agrees with what I believe
  - Level 4: expert opinion if it agrees with me
  - Level 5: expert opinion if I am the expert

with apologies to Bleck, 2000
Evidence-based medicine

- Errors in perception, interpretation, cognition
- Bias
- Evidence-based medicine
  - Level 1: systematic review
  - what to leave in, what to leave out?

Odds ratio

0.5 1 2
Evidence-based medicine


Meta-analysis of 11 randomised controlled trials:

- Lidocaine + adrenaline fastest
- Ropivacaine best quality
- Fentanyl improves speed (except with lidocaine) – but not quality
- Excluded bicarbonate as too few studies
Evidence-based medicine


Meta-analysis of 11 randomised controlled trials:

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– but not quality

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Evidence-based medicine

Different: ● patients’ characteristics

● epidural regimen used during labour

● volume of top-up

● method of injection

● time over which it was given

● when ‘time zero’ was

● how the block was assessed

● when surgery was allowed to start

● what constitutes ‘standard’ surgical practice

● what supplementation was given, and when
Evidence-based medicine


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Evidence-based medicine

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“At some point, including all fruit that is round, in order to get enough fruit in the basket, means one cannot say much about apples vs oranges except that they are both in the basket”

Malhotra et al, 2012

“Such diversity may affect the validity of the meta-analytical techniques applied to this endpoint”

Hillyard, 2011
Evidence-based medicine

• Errors in perception, interpretation, cognition
• Bias
• Evidence-based medicine
  • Level 1: systematic review

• what to leave in, what to leave out?
• different methods of analysis
• different results of large RCTs
• multiple meta-analyses doesn’t mean stronger evidence

Odds ratio

0.5 1 2
Evidence-based medicine

- Errors in perception, interpretation, cognition
- Bias

Evidence-based medicine

- Level 1: systematic review
- Level 2: randomised controlled trial
- Level 3: cohort/follow-up study
- Level 4: case series/case-control study
- Level 5: ‘mechanism-based reasoning’

“no evidence ranking system or decision tool can be used without a healthy dose of judgment and thought”

www.cebm.net
Evidence-based medicine

- Errors in perception, interpretation, cognition
- Bias
- Evidence-based medicine
- Too much evidence!
“It is surely a great criticism of our profession that we have not organised a critical summary, by specialty or subspecialty, adapted periodically, of all relevant randomised controlled trials.”

Archie Cochrane
Too much evidence

- Errors in perception, interpretation, cognition
- Bias
- Evidence-based medicine
- Too much evidence
- Too little time, too few resources…
- …so we look to others
- …and to more accessible sources of information
Too much evidence

EBM & Only reading the Meta-analysis

Before RCTs Medicus etc

Only reading the abstract
Challenges (evidence)

- Self-awareness (bias)
- Challenge researchers (correspondence)
- Read the papers not the summaries, digests or tweetable abstracts
- Be sensible
Challenges in obstetric anaesthesia

- Evidence
- Research
Research

- Time / effort
- Emphasis
- Resources
- Expertise
- Ethics

Anaesthesia Aug 2016
https://www.learnataagbi.org/
Research

• Time / effort
• Emphasis
• Resources
• Expertise
• Ethics

• Difficult…
• Going to get worse
• But there’s always time
• ?Obstetric easier

Anaesthesia Aug 2016
https://www.learnataagbi.org/
Research

- Time / effort
- Emphasis
- Resources
- Expertise
- Ethics

Size isn’t everything

Anaesthesia Aug 2016
https://www.learnataagbi.org/
Research

- Time / effort
- Emphasis
- Resources
- Expertise
- Ethics

- Doesn’t have to cost a lot
- Small grants are available

Anaesthesia Aug 2016
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Research

- Time / effort
- Emphasis
- Resources
- Expertise
- Ethics

Current shortfall

Anaesthesia Aug 2016
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Research

- Time / effort
- Emphasis
- Resources
- Expertise
- Ethics

- Research vs audit vs QI vs service evaluation vs survey…
- Use moral compass

Anaesthesia May 2016

Anaesthesia Aug 2016

https://www.learnataagbi.org/
Challenges (research)

• Keep doing (and presenting) small studies
• Apply for small grants
• Be very careful about ethics
  (and ask the women!)

George et al, IJOA Aug 2014
Clinical practice

- Evidence
- Research
- Clinical practice
Challenges in obstetric anaesthesia

Deaths per 100,000 births → maternities

- Deaths per 100,000 births: 0, 2, 4, 6, 8, 10, 12, 14, 16
Challenges in obstetric anaesthesia

Deaths per 100,000 births → maternities

- 0 - 0.2 - 0.4 - 0.6 - 0.8 - 1.0 - 1.2 - 1.4

- 0 - 100 - 200 - 300 - 400 - 500 - 600 - 700 - 800
Challenges in obstetric anaesthesia

- Complacency
  - awareness
  - culture

*Francis Report, 2013*
*Berwick Report, 2013*
Challenges in obstetric anaesthesia

- Complacency
  - awareness
  - culture
  - general
  - specialised

Deaths per 100,000 births → maternities
Challenges in obstetric anaesthesia

- Complacency
- Perfect storm
Perfect storm

- **Workload**
  - number: ↑ ~100,000 in
  - condition last 15 years
    - age: ≥ 35 exceeded
    - size ≤ 25 in 2014
  - co-morbidity
  - complexity
  - smoking: gradual decline last 10 years (15 → 10%)

ONS; DoH, 2014-16
Perfect storm

- Workload
- Workforce
  - age
  - wellbeing: “Staff burnout could derail NHS efficiency drive”
  - number

Nuffield Foundation, June 2015
Perfect storm

- **Workload**
- **Workforce**
  - age
  - wellbeing
  - number:
    - 4.4% consultant anaesthetist posts vacant
    - 11% SAS / Trust posts vacant
    - 15% training posts unfilled

*RCoA census, 2015*

- 4.7% growth / year required in anaesthesia & ICU

*CfWI report, 2015*
Perfect storm

- “Up to 20% of England’s 147 consultant-led units need to close due to doctor shortage, says obstetricians’ leader”
  Guardian, 21 January 2016

- “Thousands of NHS nursing and doctor posts lie vacant”
  BBC News, 29 February 2016

- “Junior doctors shortage leads to suspension of specialist maternity services at NHS hospital”
  Independent, 1 September 2016

- “Over a third (38.6%) of maternity units had to close temporarily during the last year because they couldn’t cope with the demand”
  Royal College of Midwives survey, 19 October, 2016
Perfect storm

• “Three-quarters of NHS maternity wards have no consultant overnight”
  
  *Daily Mail, 25 October 2016*

• “Three in four NHS areas are failing on maternity, new rankings show”
  
  *Daily Telegraph, 27 October 2016*
And if that weren’t bad enough…

- General shortfall in funding
  - “NHS head disputes Theresa May claims over health funding”  
    Guardian, 8 Oct 2016
  - “Maternity units across the country could be closed or downgraded under plans to plug a shortfall in NHS funding projected to reach £22bn by 2020”  
    Times, 9 October 2016
  - “One in five [clinical commissioning groups] expect to close consultant-led maternity services”  
    Telegraph 1 November, 2016
    (Health Service Journal, 25 October, 2016)
And if that weren’t bad enough...

- General shortfall in funding
- Increased requirements to meet ‘7-day service’
  - “Seven-day NHS plan contains ‘serious flaws’ and is ‘completely uncosted’”

  Independent, 10 May 2016
And if that weren’t bad enough…

- General shortfall in funding
- Increased requirements to meet ‘7-day service’
- Disruption / anxiety over junior doctors’ contract
- Brexit
  - staffing
  - access to treatment
  - regulation
  - international collaboration
  - funding / finance

King's Fund, 30 June, 2016
“There is a state of unease within the medical profession across the UK that risks affecting patients as well as doctors”

GMC, 27 October, 2016
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Self-awareness (bias)
Challenge researchers (correspondence)
Read the papers not the summaries, digests or tweetable abstracts
Be sensible

Keep doing (and presenting) small studies
Apply for small grants
Be very careful about ethics

Fight complacency
Be prepared
Challenges in obstetric anaesthesia

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- Research
- Clinical practice

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Be sensible

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Fight complacency
Be prepared
Use the evidence
Do the research
Challenges in obstetric anaesthesia

- Evidence
- Research
- Clinical practice

Self-awareness (bias)
Challenge researchers (correspondence)
Read the papers not the summaries, digests or tweetable abstracts
Be sensible

Keep doing (and presenting) small studies
Apply small grants
Be very careful about ethics

Fight complacency
Be prepared
Use the evidence
Do the research

Deaths per 100,000 births → maternities
Thank you