Eclampsia in the Netherlands is not similar to Eclampsia in the UK

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Roma, 5th March 2015
Eclampsia, a comparison within the International Network of Obstetric Surveillance Systems (INOSS)

Timme Schaap, M. Knight, J. J. Zwart, J.J. Kurinczuk, P. Brocklehurst, J. van Roosmalen, K.W.M.Bloemenkamp

BJOG 2014; 121: 1521-8
Maternal morbidity – LEMMMoN study
2004 - 2006

ÅLEMMMoN
ÅUterine rupture
ÅEclampsia
ÅM obstetric haemorrhage
ÅICU

ÅMonthly mail
Å371 000 pregnancies
ÅIncidence of SAMM: 7.1 per 1000 (0.71%)
ÅIncidence of Eclampsia: 6.2 / 10 000 deliveries
Eclampsia - International perspective

- Different definitions
- Patient characteristics
- Management strategies

Maternal Mortality Ratio

- Hypertensive disease of pregnancy
- Thrombosis
- Sepsis
- Haemorrhage

Incidence (per 10,000)

Number per 100,000

United Kingdom (2005-2006)
Scotland (2004)
Scandinavia (1998-2001)
Canada (2003-2009)
Sweden (1991-1992)
Nederland (2004-2006)
Eclampsia, a comparison within the International Network of Obstetric Surveillance Systems (INOSS)

Å2004 - 2006
Å100% hospitals

Å2005 - 2006
Å100% hospitals
Eclampsia, a comparison within the International Network of Obstetric Surveillance Systems (INOSS)

Eclampsia superimposed on pre-eclampsia not attributable to other causes

Any women with convulsions during pregnancy until 10 days postpartum with 2 or more:

- Hypertension
- Proteinuria
- Thrombocytopenia
- Raised ALT/AST
Using UKOSS definitions led to the exclusion of 30 LEMMoN cases
Dutch incidence fell from 6.2 to 5.4 per 10,000
Case no. 742 - Mss. I. NOSS

Â G1P0, 33 years

Â Current pregnancy
   Â Pregnancy following ICSI
   Â Reduction from a triplet → twin pregnancy

Â Delivery
   Â Spontaneous start of labour at GA 38w
   Â 2x Spontaneous delivery

   Â 4 hours post delivery: eclampsia
   Â RR 160/100 mmHg
   Â Lab: platelet’s 107, ASAT 36, ALAT 34 (uric acid: 0.43)
   Â Proteinuria: unknown

Â Therapy: Stesolid; MgSO4; Nepresol
Case no. 742 - Mss. I. NOSS

UKOSS

Any women with convulsion(s) during pregnancy or the first 10 days postpartum, together with at least two of the following features

- Hypertension (booking <90, RRd max >90mmHg AND RRd increment ≥25mmHg)
- Proteinuria (stick + OR ≥0.3g/24hr)
- Thrombocytopenia (<100x10^9/L)
- Raised plasma ALT (≥42 iu/L) OR AST (≥42iu/L)

Reason for exclusion

- Non-severe lab results
- Unknown proteinuria
Case no. 573

• G1P0, 32 years

• Current pregnancy
  • Uncomplicated antenatal checks
  • booking blood pressure: 120/78mmHg

• GA 40+5
  • Pregnancy Induced Hypertension: 150/95mmHg, headaches, no proteinuria

• GA 41+1
  • 165/105mmHg, headaches, oedema, trace of proteinuria (+/-)
  • no laboratory data
  • eclampsia

• Spontaneous labour → emergency caesarean (fetal demise)
• After CS: recurrence of eclampsia → intubated
• 1 day post delivery: 110/50
Case no. 573

UKOSS

Any women with convulsion(s) during pregnancy or the first 10 days postpartum, together with at least two of the following features

- Hypertension (booking <90, RRd max >90mmHg AND RRd increment Ø25mmHg)
- Proteinuria (stick + OR Ø0,3g/24hr)
- Thrombocytopenia (<100x10⁹/L)
- Raised plasma ALT (Ø42 iu/L) OR AST (Ø42iu/L)

Reason for exclusion

- Non-severe proteinuria
- Unknown lab data
Case no. 2557

- G1P0, 29 years

- Current pregnancy
  - Uncomplicated antenatal checks
  - Booking RRd 82mmHg

- Delivery
  - Spontaneous labour at GA 39+5
  - Transferred to hospital for pain relief. No PE complaints
  - Max blood pressure 190/105mmHg
  - Proteinuria: +
  - Laboratory: normal

- Eclampsia during dilation
- Stesolid, mgso4, Nepresol
- Spontaneous delivery
Case no. 2557

UKOSS

Any women with convulsion(s) during pregnancy or the first 10 days postpartum, together with at least two of the following features

- Hypertension (booking <90, RRd max >90mmHg AND RRd increment ≥25mmHg)
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- Thrombocytopenia (<100x10^9/L)
- Raised plasma ALT (≥42 iu/L) OR AST (≥42iu/L)

Reason for exclusion

- No RRd increment of ≥25mmHg
Case no. 114

Â G2P1, 26 years

Â Obstetric History: spontaneous delivery

Â Current pregnancy
  Â uncomplicated
  Â Spontaneous labour at home (midwife led home delivery)

Â During labour (@ home)
  Â headaches, visual complaints → eclampsia
  Â During transport to hospital: RR 180/100mmHg, retrograde amnesia

Â At admission
  Â Started on MgSO4
  Â Full dilation
  Â Instrumental vaginal delivery, daughter 2990, AS 8/9
  Â RR 200/100
  Â PPH 1500 cc
  Â no urine of laboratory results
Case no. 114

UKOSS

Any women with convulsion(s) during pregnancy or the first 10 days postpartum, together with at least two of the following features

- Hypertension (booking <90, RRd max >90mmHg AND RRd increment ≥25mmHg)
- Proteinuria (stick + OR ≥0.3g/24hr)
- Thrombocytopenia (<100x10^9/L)
- Raised plasma ALT (≥42 iu/L) OR AST (≥42 iu/L)

Reason for exclusion

- Unknown proteinuria
- Unknown laboratory results
## Incidence

<table>
<thead>
<tr>
<th>Incidence</th>
<th>5.4 / 10,000</th>
<th>2.7 / 10,000</th>
<th>&lt;0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>recurrent eclampsia</td>
<td>46 (24%)</td>
<td>54 (25.7%)</td>
<td>0.730</td>
</tr>
</tbody>
</table>

| Maternal age                           | 30 (18-42)   | 25 (15-55)   | <0.001 |
| Multiple pregnancy                      | 19 (9.9%)    | 9 (4%)       | 0.030  |
| Smoking                                | 16 (8%)      | 38 (18%)     | 0.005  |
| BMI (>30 kg/m²)                         | 15 (7.8%)    | 32 (15.0%)   | 0.029  |
| Pre-existing hypertension               | 12 (6.3%)    | 8 (3.7%)     | 0.261  |
Signs & symptoms

<table>
<thead>
<tr>
<th></th>
<th>PE before eclampsia</th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diastolic blood pressure</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;110 (mmHg)</td>
<td>111 (70-164)</td>
<td>95 (50-141)</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>130 (68%)</td>
<td>90 (42%)</td>
<td>&lt;0.001</td>
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</tr>
<tr>
<td><strong>Lowest platelet count</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>(x 10^3/mm^3; median)</td>
<td>106 (7-385)</td>
<td>176 (26-612)</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td><strong>ASAT</strong> (U/L; median)</td>
<td>84 (14-3193)</td>
<td>46 (5-1264)</td>
<td>0.013</td>
<td></td>
</tr>
<tr>
<td><strong>Proteïnuria</strong> (g/L/24hr; median)</td>
<td>5.0 (0-94) [n=107]</td>
<td>1.8 (0-11) [n=16]</td>
<td>0.268</td>
<td></td>
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</tbody>
</table>
Management

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Netherlands</th>
<th>UKOSS</th>
<th>p-value</th>
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<tr>
<td>MgSO4 profylaxis</td>
<td>19 (9.9%)</td>
<td>12 (5.6%)</td>
<td>0.134</td>
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<tr>
<td>PE prior to E</td>
<td>9 (4.7%)</td>
<td>9 (4.2%)</td>
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## Management

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<thead>
<tr>
<th>Management Category</th>
<th>Value 1</th>
<th>Value 2</th>
<th>p-value</th>
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<tr>
<td>Anti-hypertensives</td>
<td>31 (16.1%)</td>
<td>151 (70.9%)</td>
<td><strong>&lt;0.001</strong></td>
</tr>
<tr>
<td>blood pressure &gt;110 (mmHg)</td>
<td>31 (23.8%)</td>
<td>56 (62.2%)</td>
<td><strong>&lt;0.001</strong></td>
</tr>
</tbody>
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Management

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<thead>
<tr>
<th></th>
<th>Delivery</th>
<th>PE prior to E</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>37 + 5 (22-42)</td>
<td>37+3 (22-42)</td>
<td>0.628</td>
</tr>
<tr>
<td></td>
<td>38+0 (19-42)</td>
<td>37+1 (24-42)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>0.721</td>
</tr>
<tr>
<td>Induction &amp; CS</td>
<td>154 (80,2%)</td>
<td>162 (75,7%)</td>
<td>0.279</td>
</tr>
<tr>
<td></td>
<td>72 (37,5%)</td>
<td>96 (44,8)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>29 (15,1%)</td>
<td>20 (9,3%)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>0.583</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>0.838</td>
</tr>
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## Management

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<th>E – delivery interval (min)</th>
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<tr>
<td>intra partum</td>
<td>60</td>
</tr>
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<td>ante partum</td>
<td>420</td>
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<td>CS</td>
<td>240</td>
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<td>CS</td>
<td>240</td>
<td>127</td>
<td>0.006</td>
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<tr>
<td>Vaginal</td>
<td>1800 (30u)</td>
<td>779 (12u)</td>
<td>0.003</td>
</tr>
</tbody>
</table>
### Outcome

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Data 1</th>
<th>Data 2</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal death</td>
<td>3</td>
<td>0</td>
<td>0.054</td>
</tr>
<tr>
<td>Cerebro vascular accident (/10,000)</td>
<td>1.95</td>
<td>0.65</td>
<td>0.059</td>
</tr>
<tr>
<td>Perinatal death</td>
<td>9 (4.3%)</td>
<td>5 (2.2%)</td>
<td>0.276</td>
</tr>
</tbody>
</table>
Summarised

Difference in casemix
- *NL*: more multiple pregnancies; higher maternal age
- *NL*: higher highest diastolic blood pressure

Difference in management
- *NL*: less anti-hypertensives
- *NL*: less MgSO4 treatment
- *NL*: longer Eclampsia-Delivery Interval

Stricter adherence to existing guidelines
Present and future
Netherlands Obstetric Surveillance System

1 September 2013
- Eclampsia
- Cardiac Arrest
- Amniotic fluid embolism

2 years
Sneak-peak

100% participation

Reported cases NethOSS 1st year

- ECLAMPSIA: 34
- CARDIAC ARREST (PMCS): 11
- AMNIOTIC FLUID EMBOLISM: 7

Legend:
- Reported cases
- International literature
- LEMMoN
So,

Continuous measurements

International comparison
References


