There Is No Seasonality To Ruptured AAAs

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Introduction

Apart from size the exact factors that predispose to aortic aneurysm aneurysm rupture (RAAA) are unknown.

There are many associated factors, but the role of climatic variation is unclear!

MUCH ANECDOTAL EVIDENCE!!

Rupture Risk of AAA

- Initial AP diameter and Diameter Expansion.
- Smoking/COPD.
- Family history.
- Hypertension, especially diastolic blood pressure.
- Shape.
- Wall stress.
- Gender.
- Other factors

IS THERE SEASONALITY to RAAA?

Scotland's weather is changeable from day to day, from rain and storms to sunny and lovely. In general, the east coast tends to be cooler and wetter, while the west coast is milder and drier. Summer is the driest season, with average temperatures in the 60s. When to visit Scotland - SmarterTravel.com

I have no disclosures

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The Scientific Approach....review all existing literature!


The impact of weather factors, moon phases, and seasons on abdominal aortic aneurysm rupture

Background: Several studies have documented that weather factors are associated with the incidence of abdominal aortic aneurysm (AAA), but no study has examined the role of the moon phases. This study examines the relationship between weather factors, moon phases, or seasons and AAA rupture.

Methods: This is a retrospective analysis of 637 patients with AAA who presented to an academic center for the treatment of AAA. Information on the date of AAA rupture, weather factors, moon phases, and season of rupture were collected. The chi-square test was used to assess the association between these factors and AAA rupture.

Results: The incidence of AAA rupture was significantly higher during the summer (P=0.04) and during moon phases with a moon age between 10 and 29 days (P=0.01). In addition, patients with AAA rupture during the summer were more likely to have a higher body mass index (BMI) than those with AAA rupture outside the summer (P=0.05).

Conclusions: These findings suggest that weather factors, moon phases, and seasons may be associated with the incidence of AAA rupture. However, further studies are needed to confirm these findings and to determine the underlying mechanisms.

No support for seasonality!

Supporting seasonality, but elevated RAA due to elevated Atmospheric pressure in previous month!

Supports seasonality!!

No support for Seasonality or Atmospheric Pressure!!
Support for Seasonality and suggests Blood Pressure responsible!!
Methods

• 10 year retrospective study in Edinburgh, SCOTLAND.
• We collected 6 hourly, minimum, maximum and daily mean meteorological data.
• Temperature
• Barometric Pressure
• Prospectively collected database on 452 Ruptured AAA over the same 10-year period.
• Data analysed using Pearson Chi-square test and Cochran-Mantel-Haenszel statistics, p<0.05 significant.

Results

There were 452 ruptured aneurysm over a 10-year period.
The number of days with multiple ruptures.

<table>
<thead>
<tr>
<th>Number of Ruptures</th>
<th>Number of days</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3239(89%)</td>
</tr>
<tr>
<td>1</td>
<td>376(10%)</td>
</tr>
<tr>
<td>2</td>
<td>32(0.9%)</td>
</tr>
<tr>
<td>3</td>
<td>4 (0.1%)</td>
</tr>
<tr>
<td>total</td>
<td>3651</td>
</tr>
</tbody>
</table>

Distribution of RAAA by month over the 10 year period.

Average AAA ruptures/month

No correlation for month of rupture, p=NS
(Apparent peaks in different seasons).

Comparison of Daily Barometric Pressure ranges (millibars) and ruptures

No correlations identified, r=0.0196, p=NS
Comparison of daily pressure difference from day of rupture, compared to previous day

No correlation identified, p=NS

Comparison of mean daily pressure difference from day of rupture, compared to previous day

No correlation identified, p=NS

Comparison of Lowest Daily Temperatures (° Celsius) and RAAA

No correlations identified, r= 0.02539, p=NS

Comparison of Highest Daily Temperatures (° Celsius) and RAAA

No correlations identified, p=NS

Comparison of Mean Temperature Difference (° Celsius) from day of rupture to previous day and RAAA

No correlations identified, p=NS

Comparison of Daily Temperature Difference (° Celsius) from day of rupture to previous day and RAAA

No correlations identified, p=NS
Conclusion

- No correlation of barometric pressure and aneurysm rupture.
- No correlation of temperature and aneurysm rupture.
- No evidence of seasonality for RAAA.

Thank You!