

A Seasonal Variation To Epistaxis In East Kent, Uk

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Abstract

Epistaxis remains a common ENT emergency. Current evidence varies on whether a seasonal variation exists with the incidence of epistaxis. This review of epistaxis admissions in East Kent aimed to ascertain if indeed any relationship exists between epistaxis and any particular seasons or temperature.

Methods

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This was a retrospective review of all epistaxis admissions in the East Kent Hospitals NHS Trust (covering Ashford, Canterbury, Margate and surrounding Thanet) over a 5 year period: 2005 – 2009 inclusive. A total of 1,102 patients with epistaxis severe enough to require hospital admission were included in the study. The number of admissions were divided into the seasons: Winter (December – February), Spring (March – May), Summer (June – August) and Autumn (September – November). Epistaxis frequencies per year were also correlated with data on minimum and average monthly temperatures for the region supplied by the Meteorological Office UK.

Results

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Epistaxis admissions were highest in winter and lowest in summer. Winter 320 (29.04%), Spring 311 (28.22%), Summer 217 (19.69%) & Autumn 254 (23.05%). The parametric one way ANOVA and non-parametric Kruskal-Wallis tests demonstrated a statistically significant correlation between the seasons and epistaxis admissions; $p < .05$. Epistaxis admissions also correlated with mean monthly temperatures with an increase in admissions noted in cold temperatures (< 10 degrees Celsius) $p < .05$.

Conclusion

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This study shows an increase in epistaxis admissions in winter months and correlation with monthly temperatures. This finding is corroborated by similar studies in the UK and Europe. A possible explanation is the effect of indoor heating during winter on increasing nasal mucosal dryness. Further studies are required to confirm this seasonal variation as this can inform workforce planning for epistaxis management.

INTRODUCTION

Epistaxis remains a common ENT emergency which accounts for a significant number of hospital admissions worldwide. Established risk factors include anticoagulation, trauma, bleeding disorders, infections, hypertension and cancer. Current evidence however varies on the existence of

a seasonal variation with epistaxis. This remains a subject of investigation in different climes.

In the UK, the yearly seasons of summer, autumn, winter and spring are accompanied by temperature changes which may be related to hospital epistaxis admissions. An

established correlation could inform preventive measures, workforce planning and resource allocation.

AIM

This review of epistaxis admissions in East Kent aimed to ascertain if indeed any relationship exists between hospital epistaxis admissions and any particular season.

METHODS

This was a retrospective review of all epistaxis admissions in the East Kent Hospitals NHS Trust (covering Ashford, Canterbury, Margate and surrounding Thanet) over a 5 year period: 2005 – 2009 inclusive.

A total of 1,102 patients with epistaxis severe enough to require hospital admission were included in the study.

Epistaxis admissions were divided into the seasons:

- Winter (December – February)
- Spring (March – May)
- Summer (June – August)
- Autumn (September – November).

Epistaxis frequencies per year were correlated with data on monthly minimum, maximum and mean average temperatures for the region obtained from the Manston Station Meteorological Office UK.

RESULTS

Epistaxis admissions were highest in winter and lowest in summer (Fig 1 & 2).

Winter 320 (29.04%), Spring 311 (28.22%), Summer 217 (19.69%) & Autumn 254 (23.05%)

Epistaxis admissions correlated with monthly temperatures with an increase in admissions noted in cold temperatures (<10 degrees Celsius) Fig 3 & 4.

Figure 1

Table 1: Epistaxis admissions per month in East Kent: 2005 – 2009

Month	2005	2006	2007	2008	2009	Total
January		21	30	22	22	95
February		31	22	40	21	114
March		29	17	19	23	88
April	22	29	36	26	22	113
May	26	23	36	30	21	110
June	21	25	14	13	21	73
July	15	19	13	22	27	81
August	19	12	23	12	16	63
September	19	11	26	24	28	89
October	20	15	24	24	26	89
November	18	25	18	19	14	76
December	27	22	32	35	22	111

Figure 2

Fig 1: Epistaxis admissions by month in East Kent

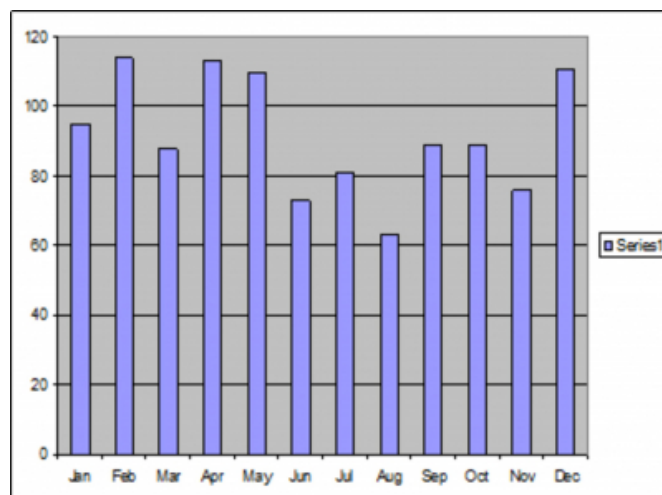
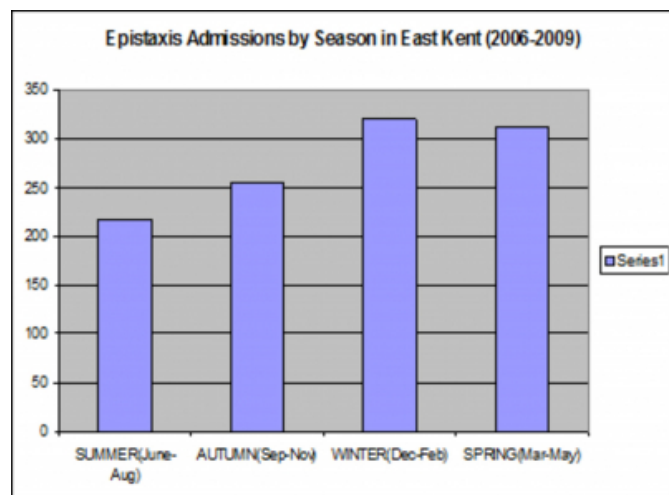


Figure 3

Fig 2: Seasonal distribution of epistaxis in East Kent



Increased epistaxis admissions during Winter (Dec – Feb) & Spring (Mar – May)

Lowest hospital admissions for epistaxis during Summer (June – Aug)

There are statistically significantly more epistaxis admissions in the winter / spring months (Dec – May) than there are in the summer / autumn months (June – Nov.); $P < 0.005$ using the t-test and non-parametric Mann-Whitney tests.

Using seasons as the variable, the parametric one way ANOVA and non-parametric Kruskal-Wallis tests demonstrate a statistically significant correlation between the seasons and epistaxis admissions; $P < 0.05$

Figure 4

Fig 3: Epistaxis and monthly median temperature

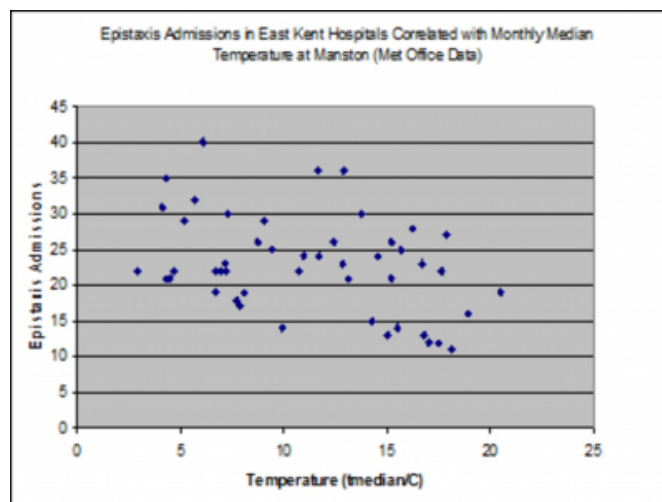
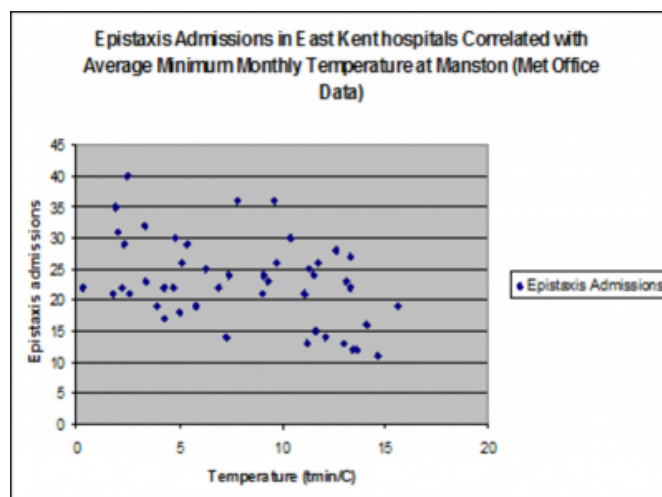


Figure 5

Fig 4: Epistaxis and average minimum monthly temperature



Cold temperatures are associated with an increased number of epistaxis admissions.

There is high correlation between epistaxis and mean monthly temperatures.

DISCUSSION

This study of 1,102 patients requiring hospital admission for epistaxis demonstrates a statistically significant association between hospital admissions due to epistaxis and the cold seasons in East Kent. The lowest hospital admissions were during summer. There was a statistically significant correlation between epistaxis admission rates and mean monthly temperature with significantly more hospital admissions with temperatures less than 10 degrees Celsius. The true incidence of epistaxis in the East Kent population is

however not known as the majority of patients do not require admission.

Several studies have also reported an increase in epistaxis admission rates in cold seasons^{1,2}. Tomkinson et al 1999 showed in a retrospective study of 1,211 patients admitted for epistaxis that there was a marked increase of hospital admissions on colder days with a higher rate at temperatures less than 5 degrees Celsius¹.

A similar study in Glasgow³ corroborates this study's findings of a high statistical correlation with mean monthly temperature. Epistaxis admissions increased by over 100% from the warmest to the coldest months. Further evidence from a study in Poland showed significantly more epistaxis admission during the cold season between December and April².

Studies have also reported statistically significant correlation between epistaxis and mean monthly temperature and water vapour pressure^{3, 4, 5}.

In a study of 1067 patients admitted with epistaxis in Perugia Italy between 1987 – 1990, epistaxis has been found to correlate with a combination of critical values of low temperatures of 4 degrees Celsius daily gradient, a 716mmHg atmospheric pressure with 2 mmHg negative gradient and close to 100% relative humidity⁶. This correlation of epistaxis with atmospheric pressure and humidity is corroborated by earlier studies.

We concede however that there are other studies that show findings contrary to this study. Bray et al (2005) carried out a large retrospective study on epistaxis in London of 1,373 patients presenting to hospital out of which 386 (28.1%) were admitted to hospital. The study demonstrated no

relationship between epistaxis presentation rate (as opposed to admission rate) and temperature or seasonal variation⁸.

Other studies have also suggested no relationship between epistaxis and mean monthly atmospheric pressure².

CONCLUSION

This study shows an increase in epistaxis admissions in winter and spring months and significant correlation with mean monthly temperatures. This finding is corroborated by similar studies in the UK and Europe.

A possible explanation is the effect of indoor heating during winter on increasing nasal mucosal dryness. Further studies are required to confirm this seasonal variation as this can inform workforce planning for epistaxis management.>

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