SEASONALITY OF BENIGN PAROXYSMAL POSITIONAL VERTIGO

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INTRODUCTION

BPPV is probably the most common diagnosis at vertigo clinics. Diagnosis is confirmed by Dix-Hallpike Test (Posterior canal), or the Roll Test (Horizontal canal) BPPV.

In 1969 Schucknecht proposed the theory of (Cupulolithiasis)

In 1979, Hall proposed the concept of (Canalolithiasis)

It is most commonly idiopathic and its prevalence increases with age

Seasonal cycles of several human illnesses could be attributed variously to changes in atmospheric or weather conditions.

The clinical observation of seasonal increase in BPPV cases lead us to conduct this study to determine if it exists in our geographic locality.

Subtropical one with marked seasonal climatic variations.


PATIENTS AND METHODS

Retrospective study.

The Consultation Center of Nineveh Medical College from January/ 2010-December/ 2012.

The chart review included the date of presentation, the clinical presentation, and the recurrence of the disease.

BPPV inclusion criteria:

Typical Posterior or Lateral canals BPPV, with positional nystagmus.

Cases with positional vertigo with no visible nystagmus.
Treatment modality was mainly the PRM followed by medical treatment with betahistine hydrochloride((betaserc)) 16 mg twice or thrice daily for 2 weeks.

In cases when the maneuver is contraindicated or failed, medical treatment was commenced with betahistine followed by the repositioning maneuver after 2 weeks.

The outcome of the problem was reviewed mainly to confirm the inclusion criteria of BPPV but was not included in the details of the study.
Atypical cases of positional vertigo, or cases of positional vertigo with other vestibular problems like MD or VN were excluded.

The mean temperatures in degree Celsius of all months of the years of the study period were retrieved from the calendar of the province through internet (Google) search.

RESULTS

There were 207 patients with BPPV.

There were 83, 58, and 66 patients in the years 2010, 2011, and 2012 respectively.

The age range was from 20-78) with a mean of 49.5 years.

There were 67(32.3%) males and 140 females (67.7%).
The number of patients presented monthly was compared with the assumption of equal number of patients diagnosed monthly. The comparison was analyzed by the $\chi^2$ goodness of fit test.

A Pearson correlation test was used to study the correlation between the number of patients with average temperature.

All the data had been processed by the use of statistical package SPSS ver 18 (Chicago Inc, ILL).

A p-value <0.05 was considered statistically significant.
over all

R = -0.495
P = 0.01

over all
The graph shows a scatter plot and a line graph for the year 2010. The scatter plot features data points with a significant trend indicated by the correlation coefficient $R = -0.507$ and a p-value $P = 0.01$. The line graph illustrates the temperature ($°C$) over the months, with a peak around the middle of the year.
2011

R = -0.390
P = 0.05

Number of patients vs. temperature °C

2011

Number of patients vs. temperature °C vs. Months

Number of patients/ Months
R = -0.251
P = 0.2
A predominance of female sex accounting about 67.7% of patients.

The mean age is about 50 years. Middle-aged women, hormonal factors may play a role in the development of BPPV.

In a recent study, bone mineral density score was decreased in both women and men with idiopathic BPPV.


Nineveh Province is situated in northwest Iraq and is characterized by variable weather changes with rainy cold winter and dry hot summer.
Dix and Hallpike reported an association between BPPV and sinus infections.

Cohen et al. reported symptoms of rhinosinusitis or upper respiratory disease in half of patients with BPPV.


In the current study the association between BPPV and rhinosinusitis or respiratory infections was not studied.

Sedentary life which might be present in such weather especially in our eastern society and sport activities are uncommon.


Sleep seems to be involved in the pathophysiology of BPPV.

Viral etiology of peripheral vestibular disorders including BPPV.

Reactivation of a neurotropic virus (Herpes family) is based on temporal bone changes in the meatal ganglion of the facial nerve as well as in the adjacent vestibular ganglion.

Low climate temperature predisposes to the viral activation.


In the current study, it is obvious that the highest number of patients was in March which was not the coldest month, yet it followed the coldest months.

This observation might be due to the pathological process whether rhinosinusitis or reactivation of a neurotropic virus had been started resulting from cold climate, then it is followed later by the occurrence of BPPV.
In a study, which was conducted in a tropic area, the researchers found no evidence of a correlation between annual seasons and vestibular disorders in their environment.

The different results in our locality may be due to the difference in geographic locality, which is subtropical in our study.

CONCLUSION

The statistical evidence of the seasonal variation of BPPV and its relationships with low climate temperatures, may add a new concept to this most common vestibular disorder.

In certain localities where climate temperature variations are limited, this clinical observation may not be well evidenced.

This may open new questions regarding other cofactors in the occurrence or recurrence of this disease (BPPV).
THANK YOU

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