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Original Research Article

Seasonal trends in ear, nose, throat and head, neck patients undergoing shortwave diathermy at a tertiary care centre of Punjab: a five-year study

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ABSTRACT

Background: Shortwave diathermy, a therapeutic modality in acute inflammatory conditions of the ear, nose and neck has its utility in the paediatric, adolescent, middle age and the elderly. The seasonal variations of the patients enrolled in physiotherapy clinics for temporo-fascio-cervical diathermy sessions during a 5 years period, were analysed.
Methods: 490 patients with inflammatory pathologies localized to the head and neck region and referred to the physiotherapy unit of a tertiary care centre of Punjab were analysed. All were subjected to shortwave diathermy. The subjects were analysed for any seasonal trends.
Results: In the paediatric age group, maximum patients were observed in the month of March over the period of 5 years followed by the month of January. In the adolescent population maximum patients were observed in the month of November over the period of 5 years followed by the month of December. In the Adult population maximum patients were observed in the month of April over the period of 5 years followed by January and August.
Conclusion: Paediatric patients came for regular sittings in the end of March end, i.e. post examination vacation period. The elderly visited mostly during winters. Malignant otitis externa with underlying diabetes worsens in winters due to increase in intake of sugary energy drinks.

Keywords: Shortwave diathermy, Seasonal, Oto-rhino-laryngology, Head-neck, Age, Gender

INTRODUCTION

Depolarization following tissue injury at the nociceptors results in the release of neuropeptides and chemical mediators like histamine, bradykinin, prostaglandins which augment the transmission of nociceptive impulses and thus causing pain in inflammatory states.[1]

The use of heat to expedite healing and relieve the pain goes back to 1890s when d'Arsonval passed a 1 ampere current at high frequency through himself and his assistant thus explaining the use of non-ionizing radiation from the radio frequency portion of the electromagnetic spectrum.[2]

Diathermies include ultrasound, shortwave, and microwave. Shortwave diathermy uses high-frequency electromagnetic energy to generate heat.[3] Fixed radio frequency of 27.12 MHz with power of 44 watts for 20

minutes is most commonly used having depth penetration of 3 to 5 cm.[4]

Short wave diathermy acts by producing frictional heat in the tissues from use of electromagnetic energy causing vasodilatation and increased blood flow, and reduction of nociceptive substances resulting in diminution of inflammation and relief of spasm. The benefits of shortwave diathermy are described in pathologies such as. arthritis bursitis, tenosynovitis, fibrositis, myositis, sprains, strains, fractures, neuritis, peripheral vascular disease, pneumonia, bronchitis, otitis media, pelvic inflammatory disease, chronic wounds, lymphedema, chronic fatigue syndrome, fibromyalgia, postsurgical pain and oedema while it is contraindicated over metal.[6,7]

METHODS

490 subjects undergoing shortwave diathermy in the otorhinolaryngology and physiotherapy services of a tertiary care centre of Punjab were analysed during a period of five years (January 2015 to December 2019).

The retrospective study included analysis of any seasonal variation in otorhinolaryngology and head neck patients undergoing shortwave diathermy.

The subjects were divided into 4 groups they are like: Paediatric 14 years and below, adolescent 14-20 years, middle age 21-60 years and senior citizens 60 years and above.

Inclusion criteria

Inclusion criteria for the study was otitis externa, Benign necrotizing otitis externa and pre- and post-surgical interventions in early Ludwig's angina and cervical abscesses.

Exclusion criteria

Exclusion criteria for the study: Malignancies of ENT and head neck region, Post radiotherapy patients and pregnant ladies.

Statistical analysis

All statistical calculations were done using Statistical Package of Social Sciences (SPSS) 17 version statistical program for Microsoft Windows (SPSS Inc. Released 2008. SPSS statistic for windows, version 17.0, Chicago). Ethical approval of the study was taken from the Institutional Ethics Committee.

RESULTS

Outpatient/inpatient census of shortwave diathermy in ENTHNs patients of various age groups given in Tables 1-4.

Maximum number of patients were observed in the month of March over the period of 5 years followed by January among paediatric population (Table 1).

Maximum number of patients were observed in the month of November over the period of 5 years followed by December among adolescent's population (Table 2).

Maximum number of patients were observed in the month of April over the period of 5 years followed by January and August among adult population (Table 3).

Maximum number of patients were observed in the month of March over the period of 5 years followed by August, September November among elderly population (Table 4).

Table 1: IPD/OPD patients census of paediatric 14 years and below ENT patients during 2015-2019.

Month	2015		2016		2017		2018		2019		Total
Gender	M	F	M	F	M	F	M	F	M	F	
January	2	1	1	0	1	0	1	2	1	3	12
February	1	1	1	1	0	1	0	1	1	2	9
March	2	1	1	1	1	1	1	2	1	2	13
April	1	1	1	1	0	0	0	1	0	1	6
May	1	1	0	0	1	1	1	1	0	1	7
June	0	0	0	0	0	0	0	1	1	1	3
July	1	1	0	1	1	1	1	0	0	1	7
August	0	0	2	1	0	0	0	2	1	1	7
September	1	1	0	0	1	1	1	2	1	1	9
October	0	0	0	1	1	1	2	1	1	1	8
November	1	1	0	0	2	0	1	2	1	2	10
December	1	1	0	1	1	1	0	1	1	2	9

Table 2: IPD/OPD patients census of adolescent 14-20 years ENT patients during 2015-2019.

Month	2015		2016		2017		2018		2019		Total
Gender	M	F	M	F	M	F	M	F	M	F	
January	1	0	1	1	1	1	1	1	1	2	10
February	1	1	1	0	1	0	1	0	1	1	7
March	0	1	0	1	0	1	0	1	0	1	5
April	1	0	1	0	1	0	1	0	1	1	6
May	0	0	0	0	0	0	0	1	0	1	2
June	1	0	I	1	1	1	1	2	1	1	10
July	1	1	1	0	1	0	1	0	1	2	8
August	0	1	0	1	0	2	0	1	0	1	6
September	0	0	0	1	0	0	0	1	0	1	3
October	1	1	1	0	1	1	1	1	1	2	10
November	2	0	*2*	1	2	2	*2*	*1*	*2*	*2*	16
December	1	1	1	1	1	2	1	2	1	1	12

Table 3: IPD/OPD patients census of middle age 21-60 years ENT patients during 2015-2019.

Month	2015		2016		2017		2018		2019		Total
Gender	M	F	M	F	M	F	M	F	M	F	
January	1	3	1	2	1	3	1	4	1	5	22
February	0	2	0	1	0	3	0	3	0	4	13
March	1	1	1	2	1	4	1	5	1	7	24
April	2	2	2	3	2	3	2	4	2	6	28
May	1	1	1	2	1	1	1	2	1	4	15
June	0	2	0	1	0	1	0	2	0	3	9
July	1	1	1	2	1	2	1	3	1	4	17
August	2	2	2	1	2	2	2	4	2	3	22
September	1	1	1	2	1	2	1	3	1	4	17
October	0	2	0	1	0	1	0	2	0	5	11
November	1	1	1	2	1	3	1	2	1	3	16
December	0	2	0	2	0	3	0	2	0	4	13

Table 4: IPD/OPD patients census of senior citizens 60 years and above ENT patients during 2015-2019.

Month	2015		2016		2017		2018		2019		Total
Gender	M	F	M	F	M	F	M	F	M	F	
January	1	0	1	1	1	1	1	1	1	1	9
February	0	0	0	0	0	0	0	0	0	0	0
March	2	1	2	0	2	1	2	0	2	1	13
April	1	0	1	1	1	0	1	1	1	1	8
May	1	0	0	1	0	1	0	0	0	1	4
June	0	0	1	0	1	1	1	2	1	1	8
July	1	1	0	0	0	1	0	1	0	1	5
August	2	0	2	0	0	0	2	0	2	0	10
September	1	1	1	1	1	0	1	1	1	2	10
October	0	0	0	0	0	0	0	1	0	1	2
November	1	0	1	1	1	1	1	1	1	2	10
December	2	1	0	0	0	1	0	2	0	3	9

DISCUSSION

490 subjects undergoing shortwave diathermy in the Otorhinolaryngology and Physiotherapy services of a tertiary care centre of Punjab were analysed during a period of five years (January 2015 to December 2019).

Maximum number of patients were observed in the month of March over the period of 5 years followed by January among paediatric population (less than 14 years) owing to the holiday period in March, post examination and children being more playful, spending more time in the swimming pool, resulting in increasing incidence of otitis externa.

Maximum number of patients were observed in the month of November over the period of 5 years followed by December in the adolescent population.

Maximum number of patients were observed in the month of April over the period of 5 years followed by January and August in the adult population.

The elderly population (above 60 years) patients were observed throughout the year over the period of 5 years. They are usually immunocompromised (diabetic) and suffer from malignant otitis externa status of which remains the same throughout the year. The short-wave diathermy acts as magic potion for the elderly providing symptomatic relief throughout the year.

CONCLUSION

March end is post examination vacation period when maximum sittings were there by paediatric patients. The elderly were noted mostly in the changing seasons, i.e. mostly during winters. Malignant otitis externa with underlying diabetes worsens in winters due to increase in intake of sugary energy drinks.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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