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CARPAL TUNNEL SYNDROME IN PREGNANCY, A COMMON BUT NEGLECTED PROBLEM.

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ABSTRACT

BACKGROUND: CTS is a condition in which the Median Nerve is compressed in the carpal tunnel at wrist and is characterized by pain, tingling & numbers in the hand & Fingers, especially more at night. It is c/b pressure on the Median Nerve in a tight/narrow "CARPAL TUNNEL" at the wrist between carpal bones on one side & the tough, non elastic "transverse carpal ligament" on the other side. Risk factors can be previous wrist fracture, Rh, Arthritis, Hypothyroidism & pregnancy. In pregnancy, the signs & symptoms of CTS are aggravated especially in the last trimester and are more severe at night and decrease or disappear after pregnancy.
It's a common & neglected Neuropathy of the Median Nerve in pregnancy & is said to be caused by tissue edema & swelling during increased fluid retension during pregnancy.
OBJECTIVE: To know the prevalence of Carpal Tunnel Syndrome in Pregnancy in patients seen as outpatient in multiple centers of Khyber Pakhtoonkhwa.
MATERIALS AND METHOD: This descriptive study was conducted at Department of Orthopedics & Trauma Saidu Teaching Hospital Swat, Department of Obstetrics and Gynecology Hayatabad Medical Complex Peshawar, Department of Neurosurgery Gajju Khan Medical College Swabi and Department of Orthopedics and Spine Surgery Ghurki Trust Teaching Hospital Lahore from 02-08-2014 to 01-12-2015. Five hundred and eighty three (583) pregnant females were included in the study. All these women visited Orthopedics OPD and OB & GYN OPD. Exclusion criteria in this study were previous wrist fracture, pre-pregnancy CTS and carpal tunnel surgery. Diagnosis of CTS was made by typical history, clinical tests which included Phalen's test, Tinel's Sign and direct compression of Median Nerve at carpal Tunnel. A written informed consent was taken from all the patients fulfilling the criteria. Patient's data was recorded in the Proforma and analyzed in SPSS version 17. Results were presented as graphs and tables.
RESULTS: In this study 583 female pregnant patients were enrolled. Their ages ranged from 19 to 43 years and the mean age was 31.27 years. The majority of our patients were housewives i.e. 514(88.17%) were housewives. Amongst the rest 37(6.35%) were school teachers, 9(1.54%) were computer operator, 21(3.60%) were Paramedical staff in health department, 2(0.34%) were lady doctors. 161 were in first trimester, 179 were in second trimester and 243 were in third trimester. Out of 583 females 197(33.80%) were primigravida while 386(66.20%) were multigravida. Out of 583 females with wrist pain, 269(46.95%) had establish Carpal Tunnel Syndrome. Among these 269 females, 21(7.81%) were in first trimester, 38 (14.13%) were in second trimester and the rest 210(78.10%) were in third trimester. In 165(61.34%) females it was bilateral and in 104(38.66%) it was unilateral. In unilateral cases right hand was involved in 71(68.27%) females while left hand was involved in 33(31.73%) females.
CONCLUSION: Carpal Tunnel Syndrome is a common condition in pregnancy which needs proper attention and management.
KEY WORDS: Carpal Tunnel Syndrome, Pregnancy, Prevalence.

INTRODUCTION

Carpal tunnel syndrome results from compression of the median nerve at the wrist. It is most common focal peripheral neuropathy[1]. Patients usually complaining of pain, numbness, weakness or tingling in the hand[3,4] . Long-

standing CTS leads to permanent nerve damage, atrophy of some of the hand muscles and thenar eminence[5]. Nerve entrapment occurs in the carpal tunnel, a narrow opening between the carpal bones and transverse carpal ligament at the base of the hand, through which the finger flexor tendons and median nerve pass[2]. It occur in people of all ages, with peak incidence occurring between the ages of 50-60 year[3,4]. There are several risk like female sex, family history, repetitive hand use, obesity, pregnancy and a variety of medical comorbidities including diabetes mellitus, rheumatoid arthritis, and other connective tissue diseases[6]. It may be idiopathic[1]. During pregnancy it is very common because of hormonal changes and musculoskeletal changes[7]. In 1957, Wallace and Cook for the first time described two cases of CTS in pregnancy and did surgical decompression[8]. The reported incidence ranges from 0.8% to 70%[8]. There are several easily performed tests that, when performed in conjunction with each other, can have a high level of specificity. The most specific test is the carpal tunnel compression test[10]. The examiner applies direct thumb pressure over the median nerve at the carpal tunnel; a positive test consists of paresthesias elicited within 30 seconds. Phalen's test is another test and if positive there is paresthesias elicited within 60 seconds of passive wrist flexion[11].The Tinel test is another diagnostic test and involves direct percussion of the median nerve at the carpal tunnel; reproduction of paresthesias is considered a positive result. Nerve conduction and electromyography testing are the diagnostic gold standard, although if carpal tunnel compression, Phalen's, and Tinel's tests are all positive, there is a specificity of >98% and it is usually unnecessary to order electrodiagnostic studies prior to referral[12]. Neurophysiologic investigations are essential for confirming the diagnosis, assessing severity and excluding more generalized neuropathies, as well as providing a baseline preoperative index of median nerve function[6].

MATERIALS & METHOD

This study was conducted at Department of Orthopedics & Trauma Saidu Teaching Hospital Swat, Department of Obstetrics and Gynecology Hayatabad Medical Complex Peshawar, Department of Neurosurgery Gajju Khan Medical College Swabi and Department of Orthopedics and Spine Surgery Ghurki Trust Teaching Hospital Lahore from 02-08-2014 to 01-12-2015. It was Descriptive Case series study. Five hundred and eighty three (583) pregnant females were included in the study. All these women visited Orthopedics and OB & GYN OPD. Exclusion criteria in this study were previous wrist fracture, pre-pregnancy CTS and carpal tunnel surgery. Diagnosis of CTS was made by typical history, clinical tests which included Phalen's test, Tinel's Sign and direct compression of Median Nerve at carpal Tunnel. A written informed consent was taken from all the patients fulfilling the criteria. Written informed consent, demographic information like name and age was recorded in a semi structured Proforma and analyzed in SPSS version 17. Results were presented as graphs and tables.

RESULTS

In this study we included 583 female patients who were pregnant. Their ages ranged from 19 to 43 years and the mean age was 31.27 years. All females were included from antenatal and Orthopedics OPD's of centers of our study. The majority of our patients were housewives i.e. 514(88.17%) were house wives. Amongst the rest 37(6.35%) were school teachers, 9 (1.54%) were computer operator, 21 (3.60%) were Paramedical staff in health department, 2(0.34%) were lady doctors.

Table 01: Occupation wise distribution of our study population

S.No	Occupation	No	Percentage
1	House wives	514	88.17%
2	school teachers	37	6.35%
3	computer operator	9	1.54%
4	Paramedical staff	21	3.60%
5	lady doctors	2	0.34%

In first trimester 161 patients, 179 were in second trimester and 243 were in third trimester as shown in Table 2.

Table 02: Trimester wise distribution of our study population

S.No	Trimester	No	Percentage
1	1st Trimester	161	27.61 %
2	2nd Trimester	179	30.70 %
3	3rd Trimester	243	41.68 %

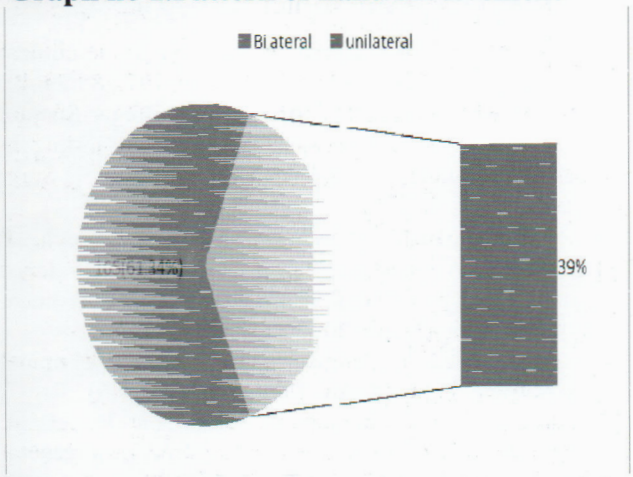
Out of 583 females 197(33.80%) were primigravida while 386(66.20%) were multigravida. Out of 583 females, 269(46.95%) had establish Carpal Tunnel Syndrome. Among these 269 females, 21(7.81%) were in first trimester, 38(14.13%) were in second trimester and the rest 210(78.10%) were in third trimester, as shown in Table 3.

Table 03: Distribution of CTS in various trimester of pregnancy

Trimester	Frequency	Percent %
First	21	7.81%
Second	38	14.13%
Third	210	78.10%
Total	269	100%

In 165(61.34%) females it was bilateral and in 104(38.66%) it was unilateral as shown in graph no 1.

Graph no 1.Pattern of hand involvement



In unilateral cases right hand was involved in 71(68.27%) females while left hand was involved in 33(31.73%) females.

DISCUSSION

Many studies have been performed about prevalence of carpal tunnel syndrome in women in different countries. But the results vary a lot (from 3% to 62%) and sometimes paradox[13]. Even though more than 80% of CTS cases in pregnancy were found to be mild, one third of the pregnant mothers with CTS had some degree of functional difficulties. We systematically reviewed the reported incidence of PRCTS and evaluated its natural history. The reported incidence of neurophysiologically confirmed PRCTS ranged from 7% to 43%, where as the incidence of clinically diagnosed PRCTS ranged from 31% to 62%. Symptoms last for longer time; it's about 50% after 1 year and 30% after 3 years[9]. In many cases, an accurate diagnosis can be confirmed by history and clinical examination[6].

The most affected task involves doing heavy work such as carrying grocery bag and household items. Since some pregnant mothers who are in their third trimester usually avoid hard work, the functional difficulties may not be so prominent. This could also be the reason why the number of pregnant mothers that mention their symptoms to their doctors was only 26%. However what would be more of a concern was that among those who mention the symptoms to their doctors, less than 10% were given treatment. Not only that, most of the treatment offered was not related to treating CTS such as giving vitamins, calcium supplements and advice to drink milk[19]. In one previous study, it shows that CTS symptoms were being underreported by patients as only 46% of symptomatic patients complain about their hand symptoms to practitioners. Out of that, only 35% were given treatment[20]. A study conducted at Lahore showed prevalence of 47.5% of CTS in pregnant women. They included women of all trimesters and the incidence was highest in third trimester14. In a study which was done in 2466 subjects, the prevalence of CTS in general population was 2.7%[15]. In a study which performed in 69 pregnant women in third trimester, 8(11%) pregnant women were

electrophysiologically diagnosed as CTS[16]. Results of one study in Australia on 1216 pregnant women showed that 35% of pregnant women had hand symptom, and 20% of them were clinically positive for CTS (7% of pregnant women). But in this study no electrophysiological studies were used[17]. In our study, there were bilateral CTS in about 61.34% whereas in a study conducted in Iran it was bilateral in 48% of women[13]. In another study the prevalence of CTS was 17% and it was bilateral in 23.5% [18]. In our study in unilateral cases right hand was involved in 71(68.27%) females while left hand was involved in 33(31.73%) females. Although it does not have any significance. In our study the incidence of CTS in pregnancy was highest in third trimester. Out of 269 females, 21(7.81%) were in first trimester, 38(14.13%) were in second trimester and the rest 210(78.10%) were in third trimester. In another study, the relation between pain at wrist joint and trimesters of pregnancy shows that out of 40 females, 8 females were in 2nd trimester in which 3 developed CTS (37.5%), 30 were in 3rd trimester in which 16 had CTS (53.3%), 2 were in 1st trimester and had no symptoms[14]. We did not exclude Diabetes Mellitus, Hypertension and Hyperthyroidism in our patient that's why the incidence is higher in our study. A study conducted in Malaysia excluded all these comorbid condition and the incidence is much lower in their study[19].

CONCLUSION

Carpal Tunnel Syndrome is a common condition in pregnancy which needs proper attention and management.

RECOMMENDATIONS

All pregnant patients should be properly assessed for signs and symptoms of the CTS by proper History, Physical Examination and necessary Investigations. Most of the symptoms of CTS disappear after pregnancy. However Mild to Moderate cases of CTS can be treated Non Surgically with Activity modifications, Splintages, Pain killers for neuropathic pain and Neurotonics. Surgery may be needed for Severe cases of CTS in Pregnancy under Local anesthesia via a small skin crease incision at the affected wrist with excellent results.

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