

Evaluation and Management of Diabetic Foot According to Wagner's Classification

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Abstract

Background: Diabetes mellitus is a common metabolic disorder affecting 20% of the population in various parts of the world. According to International Diabetes Federation (IDF) it was estimated that 80% of people with diabetes live in developing and underdeveloped countries with lower income including India. India is home of 69.1 million diabetic patients with overall frequency of 9.3% and second largest country after china. Diabetes is associated with numerous complications related to microvascular, macrovascular and metabolic etiologies

Methods: This prospective observational study was conducted by the Department of General Surgery at Mahatma Gandhi medical college and research institute from July 2016 to July 2017. A total of 60 patients were included in the study. A comprehensive history taken from each patient followed by a thorough physical examination and were recorded in the pre-designed profoma and analyzed.

Results: Themaximum cases 42 (70.6%) were in the age group of 41-60 years followed by 17 (28.3%) from the age group 21-40 years. The mean age of the patients was 46.62 (SD14.66) years ranging from 21 to 70 yrs. According to Wagner's classification, maximum number of patients presented with Grade II Wagner's lesion (46.7%) followed by Grade III (31.7%)

Keywords: Wagners score; Diabetic foot; Gangrene.

Introduction

Ectopic pregnancy is defined as when gestational sac implants itself outside the uterine cavity in the fallopian tubes, ovary, cervix, and peritoneum.¹ Ectopic pregnancy is one of the commonest acute abdominal emergencies a gynaecologist has to meet in his day to day practice. The word ectopic is from Greek; 'EX' and 'TOPOS' meaning "out of place". It is defined as any intra or extra uterine gestation in which the fertilized ovum implants at an aberrant site inconducive to growth and development. It is also a matter of great concern that a woman might have to face any time during her childbearing period. It not only threatens the life if not treated timely and effectively but also tells upon her future fertility unavoidably by causing mutilation of an essential organ of reproduction, namely the fallopian tube with or without ovary and sometimes even the uterus. In developing countries a majority of hospital based studies have reported ectopic pregnancy case fatality rate 1-3%, which is 10 times higher to that of reported in developed countries. Therefore, this study aimed to assess various parameters associated with ectopic pregnancy for better understanding of condition which will help us in early diagnosis and timely intervention and help decrease mortality and morbidity associated with it.

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Materials and Methods

Source of data

This prospective observational study was conducted by the Department of OBG General Surgery at k medical college and research institute from July 2016 to July 2017. A total of 30 patients were included in the study on the basis of inclusion criteria. A detailed history and clinical evaluation was done. Information was collected in a pre- tested proforma.

Inclusion criteria:-

1) All diagnosed cases of ectopic pregnancy admitted to hospital during the study period.

Exclusion criteria:-

All intrauterine pregnancies and sonologically diagnosed TO mass (acute abdomen)

Procedure:-

The detailed history and proper clinical findings were entered in a proforma case sheet. The clinical examination was done and necessary investigations were carried out to establish the diagnosis. On admission, after a detailed examination, a sample of blood was drawn for grouping and cross-matching to arrange blood transfusion and patients in shock were treated and then taken for surgery.

Statistical Analysis:

The data was analyzed using SPSS software version 16. Descriptive statistics like mean and percentages were used to interpret the results.

Results

The results of clinical study of 30 cases of ectopic pregnancy studied at our hospital during the period of July 2016 to July 2017.

Table 1: Age wise distribution of study subjects.

Age groups (yrs)	No. of Cases	Percentage
20-25	7	20
26-30	16	53.3
31-35	5	20
36-40	2	6.7
Total	30	100.0

Out of 60 subjects enrolled into the study, maximum 16(70%) were in the age group of 26-30 years followed by 7 (28.3%) from the age group 20-25 years. The mean age of the patients was 46.62 (SD14.66) years ranging from 21 to 70 yrs.

Table 2 : Sex Wise Distribution of Study Subjects.

Parity	Cases	Percentage
Nulliparous	0	0
1	4	13.3
2	6	13.3
3	14	33.3
4	4	33.3
5	2	6.8
Total	15	100.0

When review of previous reproductive performance was studied, it was found that the maximum incidence of ectopic gestation (33.3%) occurred among the third and fourth gravida.

Table 3: Distribution of Neuropathy.

Neuropathy	No of Patients	Percentage
Present	36	60%
Absent	24	40%
Total	60	100

In our study ,neuropathy was present in 36 patients (60%) where as it was absent in 24 cases(40%).

Table 4: Distribution of lesion.

Lesion	No of patients	Percentage
Superficial ulcer	3	5%
Deep thickness ulcer	27	45%
Cellulitis	14	23.3%
Abscess	10	16.7%
Gangrene	5	8.3%
Necrotizing fascitis	1	1.7%
Total	60	100

The most commonest lesion seen in our study are Deep thickness ulcer (45%) followed by cellulitis (23.3%).

Wagners Grade	No of Patients	Percentage
Grade 0	0	0
Grade 1	2	3.3%
Grade 2	28	46.7%
Grade 3	19	31.7%
Grade 4	8	13.3%
Grade 5	3	5%
Total	60	100

According to Wagner's classification, maximum number of patients presented with Grade II Wagner's lesion (46.7%) followed by Grade III (31.7%)

Discussion

Foot disease is a common complication of diabetes that can have tragic consequences. This study aimed to determine the prevalence of diabetic foot amongst our patients with diabetes and the associated risk factors. Wagner's classification of the diabetic foot provided an objective grading for elucidation of association and comparison of risk factors including patient awareness for the prevention of diabetic foot disease.

Age groups of the present study shown that age range of 41-60 years were at higher risk group. The results are in accordance with Ahmed et. al.⁴ and Tyagi A et. al.⁵ who noted that 74.48% and 50 % of patients belonged to the same age group. Majority of the subjects were male (84.4.3%) which was similar to study by Ali SM⁶ et. al. where in 65% of males contributed to the study. Higher incidence of diabetic foot in males may be due to the exposure to injuries during their work, which subsequently leads to injury mostly to the insensitive foot

Neuropathic lesion-diabetic peripheral neuropathy was the most important factor in 55% of the patients which was in accordance to the study done by Tyagi A⁵ et. al.(62%). Deep thickness ulcer (45%) was the most common presentation followed by cellulitis (23.3%), gangrene was seen in 8.3% and abscess in 16.7% of the patients. According to the Wagner classification 46.7% patients had grade II disease and occupied highest frequency in this study and the most important thing after assessing patients with diabetic foot ulcers by Wagner's classification is assessing whether patients had neuropathy or not. This finding were consistent with the study done by Rajyalakshmi Y⁷ and Tyagi A⁵ et. al. where in grade II contributed to 38% and 36% of the cases.

Conclusion

From this study, we can conclude Foot ulceration in diabetic patients is resource consuming, disabling morbidity, that often is the first step towards lower extremity amputation. Prevention

is the best treatment. Wagner's classification helps in correlating appropriate treatment to proper grade of lesion with better outcome. Lesser grade lesion respond well to conservative treatment with antibiotics and debridement while those with higher lesion require morbid procedures like amputation. Effective glycemic control and education are of key importance for decreasing diabetic foot disease.

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Conflict of interest: *None declared*

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

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