Research Article

Impact of AMI Standard Clinical Pathway on Clinical Outcomes in the Management of Acute Myocardial Infarction Patient in a Public Tertiary Care Hospital, Karachi-Pakistan

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Abstract

Introduction: AMI (Acute Myocardial infraction) is now a days being viral in world and most of the patients are being died by this. This disease affects the heart tissue or muscles indirectly due to shortage of oxygen supply in the heart. This can lead to the abnormality in the heart functioning which can affect the systolic and diastolic levels of a patient, and due to which the blood pressure may decrease or increase suddenly on the basis of heart pumping rate slow or high. Acute myocardial infractions are observed from the clinical perspectives like by testing the change in ECG. It can also be intercept by the pain in chest. **Objective:** To determine the impact of Acute Myocardial Infarction Standard Clinical Pathway on clinical outcomes in the management of Acute Myocardial Infarction patient in a public tertiary care hospital, Karachi-National Institute of Cardiovascular diseases Pakistan. **Materials & Methods:** Quasi-experimental non-randomized study design was conducted in the National Institute of Cardiovascular disease Karachi from September-December, 2018, comprised on Acute Myocardial Infarction (AMI) admitted patients on N=110 (55 control group and 55 intervention/post implementation groups) through health care professionals (HCPs). Patients were recruited through consecutive sampling; whereas, Health Care Professionals (HCPs) were recruited through purposive sampling. **Results:** It is observed that there were about 33 males and 22 females in pre implementation while there were 19 males and 36 females in the post implantation phase. From the results of demographic variables, there were 33 patients of DM and HTN in pre implementation of AMI clinical Pathway while they were 37 patients post implementation. There were 5 patients of TB for both pre and post implementation. There were 11 patients of IHD in pre implementation while 9 patients in post implementation. On the other hand, 6 patients of Asthma in pre implementation while they were 4 in post implementation. **Conclusion:** Implementation of AMI standard CP improves the clinical parameters of AMI admitted patients. Also reduce the Length of hospital Stay (LOS) of AMI admitted patients and improve quality of life. Reduce in LOS spectacularly seen in interventional group as compared to control group.

Keywords: Acute Myocardial Infarction (AMI); AMI standard clinical pathway; Length of hospital Stay (LOS); Angiography; Angioplasty and health care professionals

Introduction

AMI (Acute Myocardial Infraction) is now a days being viral in world and most of the patients are being died by this. [1] This disease affects the heart tissue or muscles indirectly due to shortage of oxygen supply in the heart. This can lead to the abnormality in the heart functioning which can affect the systolic and diastolic levels of a patient, and due to which the blood pressure may decrease or increase suddenly on the basis of heart pumping rate slow or high. [2] Acute myocardial infractions are observed from the clinical perspectives like by testing the change in ECG. It can also be intercept by the pain in chest. [3]

Pathway clinical care for a specific group of patients is a multidisciplinary treatment plan based on best-practice, intended to reduce delayed care, optimise resource usage and increase the quality of care and its clinical results. [4] Clinical pathways are used for audit, re-audit, and quality assurance purposes. [5] There are several different terms for clinical pathway, including "care pathway", "critical pathway", "integrated care pathway", and "care map". [6] There are numerous criteria that can be used to determine whether or not something is on a clinical pathway. The first is a well-defined multidisciplinary treatment strategy.

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[6] This treatment strategy is based on currently available clinical guidelines or clinical evidence. [6] In order to form a clinical practice standard, the current clinical guideline or clinical evidence should be reviewed and adjusted to take into account the unique characteristics of the local environment and the realities of local practice. [7] Using evidence-based design, the clinical pathway aims to improve clinical outcomes while also increasing clinical efficiency. [8] Standard Operating Procedures (SOPs) used in hospitals can be adapted to create a clinical pathway to improve the efficiency of healthcare services provided by healthcare providers. [9] Guidelines and evidence-based practice must be combined with best practice rules to produce good clinical pathways. [3] The final one, a plan of care, lays out the steps in a treatment or care course and gives a time frame for each treatment. [6] An assessment, diagnosis, information support, rehabilitation, and clinical audit are all steps in a clinical pathway. [10] Patient care or supporting infrastructure can be hampered if certain elements of the path aren't properly identified. Treatment, diagnosis, and prevention comprise the clinical pathway. Treatment is concerned with how patients are treated medically or surgically, and prevention is concerned with preventing injury or disease. [11] Each diagnostic test and treatment must have a clinical pathway as a guide on the clinical pathway. [12] An individual's clinical outcome may be improved by selecting the appropriate diagnostic tests and treatments during their treatment. That's one of the reasons hospitals use clinical pathways. Instead of a "cookbook" of prescriptive instructions, the clinical pathway should be seen as a collection of activities and interventions that are evidence-based for a particular user group. Successful inter-professional collaboration relies heavily on ongoing communication between the health care team and the patients themselves. [10] For clinical pathway implementation to be successful, doctors, nurses, and other healthcare professionals must work together. The clinical pathway is employed as a communication medium by the healthcare team and patients. [12] The path should clearly delineate the elements of care that are specific to each discipline or role, so that each member of the health care team has a structured plan of care to be implemented. [7] In order to improve the quality of healthcare services, effective communication is essential. [10] The implementation of inter-professional collaboration must be transparent, and the management of health must evaluate it on a regular basis. Patient safety and quality of health care are directly affected by clinical pathway implementation. [7] Implementing a clinical pathway can improve the quality of healthcare services. [11] Clinical pathways implemented in hospitals can reduce the likelihood of complications in some diseases. [4] Incorporating a clinical pathway can lower readmission rates, lower the cost of health care, and even increase patient satisfaction. [5] Patients are happy and secure because doctors can explain in detail each treatment provided to them in accordance with the clinical pathway, they've established. [13] Implementing a clinical pathway can also improve patient safety. [10] Clinical pathway implementation can reduce the incidence of healthcare-associated infection by reducing the length of stay of patients. [10] Additionally, a clinical pathway can enhance hospital efficiency and effectiveness on the inside. [11] An outcome indicator like length of stay can be used to gauge how well a clinical pathway is working. [14] Costs associated with the hospital and complications that arise during treatment could be used to assess the clinical pathway's overall cost effectiveness. A hospital's length of stay can be reduced by implementing a clinical pathway, such as for stroke patients. [8] Hospitalization for an extended period of time often accompanied by infections associated with the healthcare system. [15] Previously called as nosocomial infections, Healthcare-Associated Infections (HAIs) referred to diseases obtained during a patient's stay in an acute-care hospital, but today include infections acquired in a range of locations where patients get health care (for example, long-term care, family medicine clinics, at home, and ambulatory care). Healthcare-associated infection raises the patient's costs and lengthens their stay. [16]

Research Objective

To determine the impact of Acute myocardial infarction standard clinical pathway on clinical outcomes in the management of Acute myocardial infarction patient in a public tertiary care hospital, Karachi- National Institute of Cardiovascular diseases Karachi. Pakistan.

Literature Review

As indicated by Yuan et al. (-3 PUFA) have been accounted for to have helpful cardiovascular impacts, yet its component of security against (AMI) in patients getting rule-based treatment isn't completely perceived. We utilized a metabolomics way to deal with research the fundamental components of the eicosanoid metabolites initiated by -3 PUFA supplementation. Members with AMI following effective percutaneous coronary mediation were haphazardly allotted to 90 days of 2 g every day -3 PUFA and rule changed treatment (n=20-3 treatment) or rule changed treatment alone (n=20, Usual treatment). Metabolomics was utilized to profile useful PUFA-determined eicosanoids in plasma. Clinical and lab tests were acquired preceding, 90 days after, and 90 days after the examination treatment. As indicated by the aim to-treat investigation, just as Epoxy Eicosatetraenoic Acids (EEQs), got from docosahexaenoic corrosive and eicosatetraenoic corrosive, were fundamentally higher with-3 gathering than Usual treatment, while that of (PGJ2) and leukotriene B4. In contrast with Usual treatment, -3 PUFA treatment altogether diminished fatty substance levels (5.3%, P 0.05), apolipoprotein B levels (3.9%, P 0.05), and lipoprotein (a) levels (35.0%, P 0.05) while expanding nitric oxide levels (52.2%, P 0.05). Besides, the levels of these factors were decidedly corresponded with changes in the substance of 16, 17-EDP and EEQs however contrarily related with changes in the substance of PGJ2. -3 PUFA supplementation might further develop lipid digestion and endothelial capacity during recuperating mending after AMI.

As indicated by Christiana et al. they saw serum levels of solvent concealment of tumorigenicity and development separation factor-15, Patients with AMI (NSTEMI, n=47; STEMI, n=51) had more elevated levels of heart-type unsaturated fat restricting protein, dissolvable urokinase plasminogen activator receptor as well as plasma fetuin-An in their blood than controls with rejected coronary course illness (n=56). Moreover, an intensive connection investigation was completed. Contrasted with controls, patients with STEMI and NSTEMI had more elevated

Table 3: Comparison of the glycemic parameter means in gender type.

Subgroups	Male	Female	
N(%)	324(47.2%)	363(52.8%)	P-value
Parameters	**Mean ± SEM**		
FBG (mg/dl)	203.6 ± 5.7	184.4 ± 4.4	0.038
eAG (mg/dl)	230.7 ± 4.6	220.0 ± 4.1	0.084
HbA1c (%)	9.7 ± 0.16	9.3 ± 0.14	0.084
FBG *vs.* eAG	0.584	0.605	<0.001

P-value at (p<0.05).

Table 4: Comparison of the glycemic control percentages in males and females.

Gender type	Male		Female		Chi squire test	
Groups	**Good control**	**Poor control**	**Good control**	**Poor control**	**χ^2**	**P-value**
Entire group	63	261(80.6%)	96	267(73.6%)	4.718	0.03
Group A	46	48(51%)	63	41(44.7%)	0.827	0.363
Group B	13	59(81.9%)	27	81(75%)	1.205	0.272
Group C	4	154(97.5%)	6	135(95.7%)	0.685	0.525

P-value at (p<0.05).

levels communicated as middle of sST2 in pg/mL (STEMI: 122109, NSTEMI: 119991, control: 5348; P 0001), GDF-15 in pg/mL (NSTEMI 6675, STEMI: 8188, control 5486; P 0001), su PAR in pg/mL (NSTEMI: 3466, STEMI: 35611 and lower fetuin levels in the blood A levels in g/mL were estimated (STEMI: 96, NSTEMI: 44, control: 1266; P 0001). Clinical and biochemical boundaries, for example, discharge part, length of clinic stay, creatine kinase, NT-proBNP, and hs Troponin T levels, just as provocative markers, were observed to be fundamentally associated with novel biomarkers utilizing connection investigation. When contrasted with a benchmark group with avoided coronary supply route infection, plasma levels of novel biomarkers were essentially raised (sST2, GDF-15, H-FABP, suPAR) or contrarily downregulated (fetuin-A) in patients with AMI. There were huge connections with different clinical boundaries and standard biochemical markers.

As indicated by Iwama et al. expressed that their objective was to investigate the cardiovascular articulation of (PlGF) and its clinical importance in patients with intense myocardial dead tissue. Placental development factor has been displayed to advance injury recuperating by enacting mononuclear cells and initiating antigen genesis. PlGF's clinical importance in AMI is obscure. In the examination, 45 AMI patients and 42 control subjects partook. On the main, third, and seventh post-AMI days, fringe blood tests were gathered. Prior and then afterward intense coronary recanalization, blood was drawn from the coronary course and the coronary sinus. PlGF cardiovascular articulation was examined in a mouse AMI model. On day 3, PlGF levels in AMI patients were fundamentally higher than in controls. Plasma PlGF levels were fundamentally greater CS than in the CAos following recanalization, demonstrating cardiovascular creation and arrival of PlGF. PlGF levels in fringe plasma were contrarily related with intense stage LVEF and decidedly corresponded with both intense stage top fringe monocyte includes and constant stage changes in LVEF on day 3. PlGF courier ribonucleic corrosive articulation was 25.6-overlap higher in a mouse AMI model than in joke worked mice, and PlGF was communicated basically in endothelial cells in the infarct locale. During the intense period of myocardial dead tissue, the placental development factor is quickly created in the infarcted myocardium, especially by endothelial cells. Placental development factor might be overexpressed to make up for intense ischemic harm and afterward seems to further develop LVEF during the persistent stage.

As indicated by Kang et al. the viability of intracoronary mixture of granulocyte settlement invigorating variable activated fringe blood undeveloped cells has not been contrasted among patients and intense (AMI)/ (OMI). Besides, the possible danger of restenosis related with G-CSF-based immature microorganism treatment has not been concentrated with regards to DES implantation. We partitioned 96 patients with myocardial dead tissue who had coronary revascularization with DES for the guilty party sore into four gatherings at arbitrary. AMI cell implantation, n=15, AMI control, n=25, OMI cell mixture, n=13 and OMI control bunch, n=13 patients finished half year follow-up. PBSCs were assembled by G-CSF for three days prior to being conveyed to infarcted myocardium through intracoronary mixture in cell implantation gatherings. When contrasted with controls, the AMI cell imbuement bunch showed a huge added substance improvement in left ventricular discharge part and renovating (change of LVEF: +5.29.1% *vs.* 0.27.6%, P0.05; change of end-systolic volume: 5.317.0 mL *vs.* 6.521.9 mL, P0.05). In spite of a huge improvement in coronary stream hold after cell imbuement, there was no huge change in LVEF and ventricular rebuilding in OMI patients. G-CSF-based cell treatment had no impact on neointimal development after DES implantation. Intracoronary imbuement of activated PBSCs with G-CSF further develops LVEF and reshaping in AMI diseased yet is reduced effectively in patients of OMI. G-CSF grounded immature microorganism treatment joined with DES implantation is both doable and protected, with no danger of restenosis.

As indicated by Tian et al. for cure of tension issues as well as melancholy paroxetine was applied as a specific serotonin reuptake inhibitor. Ongoing examination has recognized paroxetine as a GRK2 inhibitor fit for switching cardiovascular brokenness and redesigning in trial models of intense myocardial localized necrosis (AMI). We contrast the clinical significance of paroxetine with fluoxetine, a disconnected

particular serotonin reuptake inhibitor that doesn't repress GRK2, in patients with AMI and discouragement. In AMI patients conceded to the clinic, gloom was analyzed utilizing the 16-thing self-rating depression and Hamilton depression scale. For sorrow treatment, AMID diseased were arbitrarily allotted to either paroxetine or fluoxetine. The fluctuation of pulse and heart work was evaluated. The protein levels of not really set in stone utilizing fringe lymphocytes and a Western smear. GRK2 articulation was essentially higher in AMID patients than in AMI patients who didn't have discouragement. GRK2 levels were observed to be decidedly corresponded with the 16-thing self-rating depression and Hamilton depression scores in AMID diseased, yet contrarily connected with pulse inconstancy. The organization of paroxetine to AMID patients diminished the statement of GRK2, standardized autonomic sensory system work, and worked on heart execution. Fluoxetine, then again, standardized the autonomic sensory system yet didn't lessen GRK2 articulation or work on heart execution. This examination recommends that paroxetine is successful for working on heart work in AMID patients and that this impact corresponds with abatement in GRK2.

As indicated by Lexis et al. metformin treatment is related with further developed results after myocardial localized necrosis in diabetic patients. Metformin has been displayed in creature studies to protect left ventricular capacity. The reason for this investigation was to perceive what metformin treatment meant for the conservation of left ventricular capacity in patients without diabetes who had a ST-fragment rise myocardial localized necrosis (STEMI). Between January 1, 2011, and May 26, 2013, 380 patients went through essential percutaneous coronary mediation (PCI) for STEMI at the University Medical Center Groningen in the Netherlands. Metformin hydrochloride (500 mg) (n=181) or fake treatment (n=179) were controlled twice every day for a very long time. Following 4 months, the essential adequacy measure was left ventricular discharge division (LVEF), which was surveyed utilizing attractive reverberation imaging. The convergence of N-terminal supportive of mind natriuretic peptide following 4 months was utilized as an auxiliary viability measure. As an optional viability measure, the frequency of major unfriendly cardiovascular occasions (MACE; the consolidated endpoint of death, reinfarction, or target injury revascularization) was followed until 4 months. At 4 months, all patients were as yet alive, and none had disappeared. LVEF in the metformin bunch (n=135) was 52.1% (95% CI, 41.6%-44.6%), contrasted with 44.8% (94% CI, 52.5%-55.1%) (P=0.10) in the fake treatment bunch (n=126). The metformin bunch had a NT-proBNP centralization of 165 ng/L (Inter Quartile Range (IQR), 65 ng/L-393 ng/L) and the fake treatment bunch had a NT-proBNP grouping of 165 ng/L (IQR, 64 ng/L -373 ng/L) (P=0.56). MACE happened in 6 patients (3.1%) in the metformin gathering and 2 patients (1.1%) in the fake treatment bunch (P=0.15). Creatinine fixation (79 mol/L (IQR, 70-87 mol/L) *vs.* 79 mol/L (IQR, 71 mol/L -79 mol/L), P=0.51) and glycated hemoglobin (5.9% (IQR, 5.6%- 6.1% *vs.* 5.8% (IQR, 5.7% - 6.1%), P=0.14) didn't contrast fundamentally between gatherings. There were no reports of lactic acidosis. Metformin, when contrasted with fake treatment, didn't further develop LVEF following 4 months in patients without diabetes who gave STEMI and went through essential PCI. The ebb and flow research doesn't uphold the utilization of metformin in the present circumstance.

As indicated by Nichollas et al. mass spectrometry was utilized to inspect plasma metabolites reflecting arginine bioavailability, nitric oxide digestion, and protein oxidation in patients with CS (n=76) and age-and sexual orientation coordinated with patients with coronary corridor infection and typical LV capacity (n=76). Patients with CS had more elevated levels of deviated dimethyl arginine (ADMA; P=0.0001), symmetric dimethyl arginine (P0.0002), monomethyl arginine (P=0.0003), and glutamine (P=0.0002), nitrotyrosine (P0.0002), and bromotyrosine (P0.0001), just as lower levels of arginine (P=0.0002), arginine to ornithine proportion (P=0.02), and arginine to ornithine in addition to citrulline proportion (P=0.0002). Patients with CS who had raised ADMA levels were 3.5 occasions (94% certainty span, 1.3 to 12.3; P=0.02) bound to kick the bucket inside 30 days than patients who had low ADMA levels. On numerous strategic relapse investigations, ADMA stayed the lone free indicator of mortality. Symmetric dimethyl arginine levels were observed to be contrarily identified with mean blood vessel pressure and fundamental vascular opposition in patients with ordinary renal capacity. Regardless of huge builds, levels of protein oxidation items in CS patients didn't foresee hemodynamic brokenness or mortality. CS is recognized by an arginine-insufficient and profoundly explicit supportive of oxidant state, just as raised degrees of methylated arginine subsidiaries and endogenous nitric oxide synthase inhibitors. Methylated arginine subsidiary levels are firmly identified with hemodynamic brokenness. ADMA levels were the most grounded free indicator of 30-day mortality among all clinical and lab boundaries considered.

As indicated by Pizzaro et al. the objective of this preliminary, was to examine the drawn out impacts of intravenous (IV) metoprolol organization before reperfusion on Left Ventricular (LV) work and clinical occasions. At the point when utilized related to essential percutaneous coronary intercession, early IV metoprolol during ST-fragment rise myocardial dead tissue (STEMI) has been displayed to diminish infarct size (pPCI). The METOCARD-CNIC (Effect of Metoprolol in Cardioprotection). During an Acute Myocardial Infarction) preliminary selected 270 patients with Killip class II foremost STEMI who introduced 6 hours after manifestation beginning and were haphazardly appointed to either pre-reperfusion IV metoprolol or a benchmark group. A half year after STEMI, 201 patients (102 for every gathering) went through long haul attractive reverberation imaging (MRI). Patients were given at least a year clinical development. Left Ventricular Launch Division (LVEF) expanded after IV metoprolol (47.7 9.8% versus 44.0 11.7% in controls; changed treatment impact 3.49%; 95% certainty span (CI): 0.44% to 6.55%; p=0.025). In the IV metoprolol bunch, the extent of patients meeting Class I signs for an Implantable Cardioverter-Defibrillator (ICD) was essentially lower (7% *vs.* 20%, p=0.011). The event of the pre-determined composite of death, cardiovascular breakdown confirmation, reinfarction, and dangerous arrhythmias was 10.8% in the IV metoprolol bunch versus 17.3% in the benchmark group at a middle development of 2 years, changed peril proportion (HR): 0.45; 94% CI: 0.25 to 1.03; p=0.065. The IV metoprolol bunch had an essentially

lower pace of cardiovascular breakdown affirmation (HR: 0.22; 95% CI: 0.014 to 0.85; p=0.036). In patients with most Killip class II STEMI with pPCI, the early IV metoprolol before reperfusion resulted in greater long-distance LVEF, decreased frequency of LV systolic breakdowns and ICD signals, plus reduced cardio-basic breakdown confirmations.

As indicated by Zaliaduonyte et al. the improvement of left ventricular renovating following an intense myocardial dead tissue is an indicator of cardiovascular breakdown and mortality. The objective of this investigation was to check whether a polymorphism in the angiotensinogen quality with threonine rather than methionine at amino corrosive 225 in exon 2 influenced heart renovating after intense myocardial dead tissue. A sum of 140 patients (mean age 56.411.1) with a first intense myocardial dead tissue were enlisted. Two-dimensional echocardiography was performed inside 24 hours-72 hours of the beginning of the side effects and more than four months. Renovating was characterized as a 20% rise in left ventricular and diastolic size in comparison to standard. Examination bunch genotypes were differentiated by the genotypes of the standard bunch. Polymerase chain response intensification was utilized to distinguish the AGT M235T polymorphism. Toward the finish of the examination, 48 patients (33.7%) were found to have left ventricular rebuilding. The foremost area of the infarct, the leucocyte tally at confirmation, and the worldwide left ventricular longitudinal strain were all critical and AGT MM genotype were free indicators of ventricular redesigning following myocardial dead tissue. Front divider localized necrosis, expanded leucocyte check, diminished longitudinal strain of the left ventricle, and the AGT M235T polymorphism may all foresee myocardial dead tissue rebuilding.

As indicated by Devaux et al. foreseeing clinical results after an intense myocardial dead tissue (AMI) is troublesome. They selected 140 patients following an AMI. At release, blood tests were gathered to decide N-terminal supportive of mind Natriuretic Peptide (Nt-pro BNP) levels just as miR-16, miR-26a, miR-101, and miR-140 levels. At a half year, patients were assessed utilizing echocardiography, and the divider movement file score was utilized as a marker of left ventricular contractility. They tried the prescient worth of miRNAs against a multi-boundary clinical model that included Nt-pro BNP levels at release. Patients with front AMI and raised Nt-proBNP levels at release were at high danger of ensuing weakened LV. In light of clinical factors, a mix of four miRNAs worked on the expectation of LV contractility (P=0.005). Patients with low degrees of miR-140 (0.08(0.01-0.38)) or miR-101 (0.18(0.04-0.67)) and undeniable degrees of miR-16 or miR-27a were at high danger of debilitated LV contractility. The 4-miRNA board effectively arranged countless patients, with a net renaming improvement of 66% (P=0.00004) and an incorporated separation improvement of 0.08(P=0.002). Our discoveries propose that boards of miRNAs might support the expectation of results after AMI.

Materials and Methods

Quasi-experimental non-randomized study design was conducted in the National Institute of Cardiovascular Disease Karachi, Pakistan from September-December, 2018, comprised on Acute Myocardial Infarction (AMI) admitted patients on N=110 (55 control group and 55 intervention/post implementation groups) through Health Care Professionals (HCPs). Patients were recruited through consecutive sampling; whereas, Health Care Professionals (HCPs) were recruited through purposive sampling. In interventional group, AMI standard clinical pathway implemented and data collected in two (02) months (November and December-2018) at the time of discharge. Also monitored interventional clinical practices of HCPs (cardiologist, post graduates (Post Graduates)/residents, nurses and Critical Care Technicians) through check list. Similarly, control group observed existing routine care on the basis of AMI standard clinical pathway. Data were analyses using SPSS version 26.

Results

It is observed that there were about 33 males and 22 females in pre implementation while there were 19 males and 36 females in the post implantation phase. In pre implementation phase, 7.3% were single, 78.2% were married while 14.2% were divorced or separated, on the other hand, in post implementation, there were 1.8% single, 96.4% were married while 1.8% were separated [Table 1].

From the results of demographic variables, there were 33 patients of DM and HTN in pre implementation of AMI clinical Pathway while they were 37 patients post implementation. There were 5 patients of TB for both pre and post implementation. There were 11 patients of IHD in pre implementation while 9 patients in post implementation. On the other hand, 6 patients of Asthma in pre implementation while they were 4 in post implementation.

About 41.8% patients got their prescription of medicine within 11 minutes to 15 minutes, while in post implementation most of the patients got their medicine prescription with in ten minutes [Table 2].

According to the results of conducted tests, on the patients, like most of patients about 65.5% are found to be a smoker in post implementation of the AMI pathway. In pre implementation the ECG test of the patients is done in the 11 minutes to 15 minutes while in post implementation the most of ECG tests are conducted within 10 minutes. In troponin test, it is observed that in pre implementation, most of the patients are found to be cleaning their teeth only 1 time during their stay at hospital, but in post implementation most of the patients are observed to be cleaning their teeth daily. In pre and post implementation both, most of the patients observed to be able to walk to washroom independently [Table 3].

According to the results, it is observed that mean 5 day pulse rate of the pre implementation and post implementation patients is observed to be 80.11 with 1.14 of standard deviation and 80.48 with 1.2 of standard deviation respectively.

Mean 5 day Systolic Blood Pressure of the pre implementation and post implementation patients is observed to be 127.6 with 9.05of standard deviation and 137.38 with 3.30 of standard deviation respectively.

Mean 5 day Diastolic Blood Pressure of the pre implementation and post implementation patients is observed to be 81.7 with

Table 1: Sociodemographic details of patients.

Sr#	Demographic Variables		Pre implementation N(55) n(%)	Post implementation N(55) n(%)	P-Value
1	**Gender**	Male	33(60)	19(34.5)	0
		Female	22(40)	36(65.5)	
2	**Marital Status**	Single	4(7.3)	1(1.8)	.200*
		Married	43(78.2)	53(96.4)	
		Separated /Divorced	8(14.5)	1(1.8)	
3	**Level of Education**	Primary	29(52.7)	36(65.5)	-0.037
		Middle	10(18.2)	10(18.2)	
		Matric	5(9.1)	2(3.6)	
		Intermediate	5(9.1)	7(12.7)	
		Graduate (Bachelor)	4(7.3)		
		Post Graduate (Master)	2(3.6)		
4	**Co-Morbid**	DM & HTN	33(60)	37(67.3)	0.049
		TB	5(9.1)	5(9.1)	
		IHD	11(20)	9(16.4)	
		Asthma	6(10.9)	4(7.3)	
5	**Time of symptoms presentation to ER/ Casualty**	12:00mn-6:00am	11(20)	3(5.5)	-0.06
		6:01am-12:00pm	11(20)	3(5.5)	
		12:01am-6:00pm	22(40)	47(85.5)	
		6:01pm-12:00mn	11(20)	2(3.6)	
6	**Prescription Medication time**	Immediately	11(20)	2(3.6)	0.08
		11-15 minutes	23(41.8)	4(7.3)	
		Within 10 minutes	19(34.5)	46(83.6)	
		16-30 minutes	2(3.6)	3(5.5)	

Table 2: Test categories applied on patients.

Sr#	Category of tests		Pre implementation N(55) n(%)	Post implementation N(55) n(%)	P-value
1	**Smoking Test**	Yes	29(52.7)	36(65.5)	.306**
		No	26(47.3)	19(34.5)	
2	**ECG Test**	Immediately	21(38.2)	4(7.3)	-0.063
		11-15 minutes	20(36.4)	5(9.1)	
		Within 10 minutes	9(16.4)	44(80)	
		16-30 minutes	5(9.1)	2(3.6)	
4	**Troponin Test**	Daily	10(18.2)	23(41.8)	-0.108
		1 time during hospitalization	28(50.9)	23(41.8)	
		2 time during hospitalization	4(7.3)	4(7.3)	
		Not till discharge	10(18.2)	5(9.1)	
		Don't know	3(5.5)		
5	**Mobility Test**	Yes	25(45.5)	40(72.7)	-0.101
		No	30(54.5)	15(27.3)	
6	**Dyspnea Test**	Immediately	9 (16.4)	5(9.1)	0.073
		11-15 minutes	22(40)	18(32.7)	
		Within 10 minutes	21(38.2)	28(50.9)	
		16-30 minutes	3(5.5)	4(7.3)	

4.11 of standard deviation and 83.1 with 2.53 of standard deviation respectively.

Mean 5 day respiratory rate of the pre implementation and post implementation patients is observed to be 80.11 with 1.14 of standard deviation and 80.4 with 1.2 of standard deviation respectively.

Mean 5 day pain score of the pre implementation and post implementation patients is observed to be 4.74 with 0.46 of standard deviation and 5.30 with 0.43 of standard deviation respectively.

Table 3: Study variables for pre and post implementation of AMI pathway.

Sr#	Study variables	Pre implementation N(55) Mean ± SD	Post implementation N(55) Mean ± SD	P-Value
1	mean_5day PR	80.11(1.14)	80.48(1.20)	0
2	mean_5day SBP	127.6(9.05)	130.78(3.30)	0.142
3	mean_5day DBP	81.7(4.11)	83.1(2.53)	0.059
4	mean_5day RR	80.11(1.14)	80.4(1.20)	1.000**
5	mean_5day PS	4.74(0.46)	5.30(0.43)	0.013
6	mean_5dayECG_change	1.21(0.11)	1.19(0.13)	0.036
7	mean_5day DG	1.91(0.34)	1.88(0.19)	0.054
8	mean_5day ML	1.47(0.21)	1.54(0.15)	-0.133
9	mean_5day TL	1.44(0.23)	1.47(0.23)	-0.087

Table 4: Length of stay at hospital for pre and post implementation of AMI pathway.

LOS	Mean ± SD	P-Value
Pre implementation	4.96(0.96)	-.216*
Post implementation	4.7818(0.71)	

Mean 5 day change in ECG of the pre implementation and post implementation patients is observed the change in ECG.

Mean 5 day Dyspnea grade of the pre implementation and post implementation patients is observed to be 1.91 with 0.34 of standard deviation and 1.88 with 0.19 of standard deviation respectively.

Mean 5 day mobility level of the pre implementation and post implementation patients is observed to be 1.47 with 0.21 of standard deviation and 1.54 with 0.15 of standard deviation respectively.

Mean 5 day Troponin level of the pre implementation and post implementation patients is observed to be 1.44 [Table 4].

According to the results of length of stay in the hospital, it is observed that in pre implementation the patients were remained in hospital for the mean time of 4.96 days with the standard deviation of 0.96, while for the post implementation the mean length of stay of patients in hospital is observed to be 4.78 days with the standard deviation of 0.71, showing that the length of stay of patients in hospital is reduced.

Discussion

The AMI clinical pathway was used on the patients at a tertiary care hospital in Karachi, Pakistan, and the observed findings suggest that the length of stay was reduced. The Clinical Path Way (CPW) was created to increase efficiency and decrease clinical expenses in the United States, Australia, and the United Kingdom. [12] Karen Zander and Kathleen Bower first introduced the concept of a clinical pathway in 1985 at the New England Medical Center (Boston, Massachusetts, United States), according to Li et al. It arose as a result of the development of Diagnosis-Related Groups (DRG), the first extensively used diagnostic categorization system.

Clinical pathways have already been adopted in hospitals and healthcare organisations in a number of countries throughout the world, including Asia. [4] A retrospective cohort research found that following a therapeutic route is connected to both duration of stay and service expenditures. [16,17] The goal of the study was to see how following a standard clinical pathway affected the usage and cost of health care in paediatric emergency rooms and inpatient settings. [18-22] As a result, the better the compliance with the clinical route, the cheaper the health-care expenses and the shorter the length of stay. [23-25] Diagnostic testing and therapy adherence are two criteria for clinical route compliance. [26,27]

Conclusion

Form the observed results, it is concluded that after implementation of AMI standard clinical pathway on the patients, 55 patients are observed on the basis of pre implementation while the same 55 patients of are observed for post implementation of the AMI pathway. There are improvements observed in the pulse rate for the patients of post implementation than that of pre implementation. While respiratory rate is also observed to be normal for post implementation patients than that of pre implementation. Mobility level of the post implementation patients is also observed to be improved than that of pre implementation patients. On the other hand, pain score and blood pressure and respiratory rate seems to be closer to normal in pre implementation than that of post implementation. And the length of stay of the patients, in the hospital is also observed to be lesser for post implementation than that of pre implementation. Implementation of AMI standard CP improves the clinical parameters of AMI admitted patients. Also reduce the Length of hospital Stay (LOS) of AMI admitted patients and improve quality of life. Reduce in LOS spectacularly seen in interventional group as compared to control group.

Recommendations

There is still need to increase the sample size to check the impact of AMI clinical path way for the patients in general.

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