IJPPR
INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH
An official Publication of Human Journals
ISSN 2349-7203
HUMAN

Human Journals
Case Study
April 2018 Vol.:12, Issue:1

Case Scenario - Coronary Artery Bypass Grafting

Heart Surgery as a Wake-Up Call

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ISSN 2349-7203
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Submission: 20 March 2018
Accepted: 27 March 2018
Published: 30 April 2018

www.ijppr.humanjournals.com

Keywords: Coronary artery bypass grafting, surgery, heart. Surgeons, CABG, coronary heart disease

ABSTRACT

Coronary artery bypass grafting (CABG) is a type of surgery that improves blood flow to the heart. Surgeons use CABG to treat people who have severe coronary heart disease (CHD). Coronary artery disease is the predominant cause of cardiovascular disease, which is the leading cause of death worldwide. The number of affected individuals is expected to rise further in the coming years due to changing lifestyles in the developing world. Treatment aims to prolong survival, relieve symptoms of ischemia, improve functional status and thereby improve quality of life. Patient is 63 year old male, with history of dyspnoea on exertion since one month. On evaluation, he was found to have triple vessel coronary artery disease with left main disease. After pre – operation evaluation he underwent coronary artery bypass graft on 23/09/13. Postoperative recovery was uneventful.

INTRODUCTION

Coronary artery bypass graft (CABG) surgery is a lifesaving process, but the early recovery period presents a number of challenges for patients. Early and adequate discharge planning based on in-depth knowledge of the post discharge experience can help to ensure optimal recovery. Coronary artery bypass grafting (CABG) is a type of surgery that improves blood flow to the heart. Surgeons use CABG to treat people who have severe coronary heart disease (CHD). CHD is a disease in which a waxy substance called plaque builds up inside the coronary arteries. These arteries supply oxygen-rich blood to your heart.

Coronary artery disease is the predominant cause of cardiovascular disease, which is the leading cause of death worldwide. The number of affected individuals is expected to rise further in the coming years due to changing lifestyles in the developing world.Treatment aims to prolong survival, relieve symptoms of ischemia, improve functional status and thereby improve quality of life.

CABG is one treatment for CHD. During CABG, a healthy artery or vein from the body is connected, or grafted, to the blocked coronary artery. The grafted artery or vein bypasses the blocked portion of the coronary artery. This creates a new path for oxygen-rich blood to flow to the heart muscle.

Types of Coronary Artery Bypass Grafting

- Traditional Coronary Artery Bypass Grafting
- Off-Pump Coronary Artery Bypass Grafting
- Minimally Invasive Direct Coronary Artery Bypass Grafting

Who Needs Coronary Artery Bypass Grafting?

Coronary artery bypass grafting (CABG) is used to treat people who have severe coronary heart disease (CHD) that could lead to a heart attack. CABG also might be used during or after a heart attack to treat blocked arteries.

CABG also might be a treatment option if you have blockages in your coronary arteries that can't be treated with angioplasty.

CABG based on factors such as:

- The presence and severity of CHD symptoms
- The severity and location of blockages in coronary arteries
- Response to other treatments
- Quality of life

The risks of CABG include:

- Wound infection and bleeding
- Fever
- Pain
- Stroke, heart attack, or even death

Case presentation

A 63 year old man came for regular check up with the history of Dyspnoea on exertion on and off since one month. Chest pain, palpitation/syncope attack. After examination, TMT was found positive and ordered for coronary angiogram. Patient blood pressure was 120/80 mm/Hg, pulse 84beats/min and respiratory rate 20 and temperature normal. There was no family history, past history as well as surgical history. His thirst, appetite, bowel, sleep and micturition normal. Patient food habit was vegetarian. Social habit nothing significant.

DIAGNOSIS: Exertional Angina, TMT +VE

General physical examination:

Pallor - Negative

Cyanosis - Negative

Clubbing - Negative

Edema - Negative

MEDICATION HISTORY

MEDICINE	DOSE	FREQUENCY	PURPOSE
Alprax	0.25 mg	0-0-1	To treat anxiety
Aztor	40 mg	0-0-1	To reduce cholesterol
Aldactone	25 mg	1-1-0	To treat high BP
Betaloc	25 mg		To treat high BP
Cap Clopitab-A	150 mg		Anticoagulant
DuolinRespules	2.5 ml	1-1-1	To treat asthma
Ecosprin	150 mg	0-1-0	Analgesic
Pantadoc	40 mg	OD	Antacid
Tab Metolor	12.5mg		To treat high BP
Tab Urimax	0.4 mg		To treat prostatic hyperplasia
InjMagnex Forte	1.5 mg	IUBD	To treat systemic infection
InjEmesetIV	8 mg	SOS	To stop vomiting
InjMucomixIV	1gm	Q8H	Antioxidant
Inj Fentanyl	50 mg	IM	Analgesic
InjPropofolInfusionIV			Cardiac anaesthesia
InjCyklokapron Infusion			To prevent hemorrhage
Inj Soda bicarbIV	25 ml		Antacid
Tab Parafizz	650 mg		Painkiller
Tab Lasix	40 mg		Diuretics.
Tab Rantac	150 mg		To treat gastric ulcer
Tab Zytanix	2.5 mg		Diuretics

Surgery: Aortocoronary bypass graft procedure done on 23/09/13

ANTHROPOMETRIC DATA

Height - 153 cm

Current body weight - 68 kg

Ideal body weight - 53 kg

Body mass index - 29.6 kg/m^2

BIOCHEMICAL PARAMETERS

PARAMETER	RESULT	NORMAL RANGE
Haemoglobin	14.2 g/dl	11.5 – 14.5
Plasma glucose	109 mg/dl	70 – 140
Total. Bilirubin	0.16* mg/dl	0.2 – 1.2
S. bilirubin direct	0.02 mg/dl	0.0 – 0.4
S. bilirubin indirect	0.14 mg/dl	0.1 – 1.0
S. Total protein	4.7* g/dl	6.0 – 8.5
S. Albumin	2.1* g/dl	3.5 – 5.2
S. Globulin	2.6 g/dl	2.0 – 4.0
A/9 Ratio	0.8	0.8 – 2.0
S. SGPT	43 U/L	5 – 45
S.SGOT	30 U/L	5 – 40
S. Urea	37	15 – 45
S. Creatinine	1.59*	0.81 – 1.44
S. Sodium	135 mmol/L	135 – 145
S. Potassium	4.1 mmol/L	3.5 – 4.5

24 HOUR DIETARY RECALL

MEAL	MENU	AMOUNT	ENERGY (kcal)	CHO (gm)	PROTEIN (gm)	FAT (gm)
Earl morning	Tea(with sugar)	100 ml	53.4	7.17	1.65	2.05
	Marie Biscuit	3 no	220	38.5	4.25	5.4
Breakfast	Idli	2	178.05	32.4	5.64	2.86
	Sambhar	1 bowl	52.5	9	3.43	0.27
Lunch	Rice	1 1/2 cup	103.5	23.46	2.04	0.15
	Sambhar	1 bowl	99.25	9.36	3.5	5.29
Refreshment	Tea(with sugar)	100 ml	53.4	7.17	1.65	2.05
	Marie Biscuit	3 no	220	38.5	4.25	5.4
Dinner	Rice	1 cup	69	15.64	1.36	0.1
	Sambhar	1 bowl	99.25	9.36	3.5	5.29
	vegetable	1 bowl	97.5	12.02	0.98	5.09
Bed Time	Milk	200 ml	134	8.8	6.4	8.2
Total			**1379.85**	**211.38**	**38.65**	**42.15**

GOAL OF MEDICAL NUTRITION THERAPY

- Improving your quality of life and reducing angina and other CHD symptoms
- Allowing you to resume a more active lifestyle
- Improving the pumping action of your heart if it has been damaged by a heart attack
- Lowering the risk of a heart attack (in some patients, such as those who have diabetes)
- Improving your chance of survival

ASSESSMENT

NUTRITIONAL REQUIREMENT

Energy : 1500 kcal

Protein : 53 gm

Fat : 35.55 gm

Carbohydrate : 225 gm

Fluid : 1.2 liter/day

Diet at hospital

DATE	DIET	ENERGY (kcal)	PROTEIN (gm)
21/9/13 (8 am)	NPO	-	-
21/9/13(12 pm)	Cardiac diet	1000	10
22/9/13	Cardiac diet		
23/9/13(9 am)	Cardiac diet	1300	30
24/9/13 (8 am)	NPO	-	-
24/9/13 (10 am)	Cardiac liquid diet	100	-
24/9/13 (11:20 am)	Cardiac semi solid diet	1200	25
26/09/13(9:30 am)	Cardiac semi solid diet	1300	30
28/09/13 (9:00 am)	Cardiac soft diet	1400	40
30/09/13 (10 am)	Cardiac soft diet	1400	40

DISCHARGE MEDICATION

MEDICINE	DOSE	FREQUENCY	PURPOSE
Cap Clopitab A	150 mg	1-0-1	Analgesic
Tab Crestor	10 mg	0-0-1	To lower cholesterol
Cap Metolar	25 mg	1-0-0	To treat high BP
Tab Fruselac(2 weeks)		1-0-0	To treat ascities
Tab Matilda Forte(2 weeks)		1-0-0	Antioxidant
Tab Parafizz (1 week)	650 mg	1-1-1-1	Pain killer
Tab Augumentin Duo (5 days)	1 gm	1-0-1	Antibiotics
Tab Neksium (3weeks)	40 mg	1-0-1	To treat heartburn

CONCLUSION

Patient is 63 year old male, with history of dyspnoea on exertion since one month. On evaluation, he was found to have triple vessel coronary artery disease with left main disease. After pre – operation evaluation he underwent coronary artery bypass graft on 23/09/13. Postoperative recovery was uneventful. After ten days of hospital, treatment patient is being discharged in a stable condition with following advice. Patient is ambulant, haemodynamically stable with well controlled pain.Low salt low fat diet prescribed and advised to walk regularly as a physical activity.Overall findings suggest that CABGis safe and effective. Patients need to follow routine exercise after CABG surgery to recover early and hence complications can be reduced.Further research is needed to determine the optimum type of exercise routine for each patient, to further define gender and age-specific differences in exercise recommendations, to identify barriers to and facilitators of continued engagement in exercise, and to specify the most useful objective physiological outcomes in post-CABG exercise routines.

Ongoing Care

Lifestyle changes might include modification in diet, being physically active, losing weight or maintaining a healthy weight, and reducing stress with happy living.Diet and exercise lifestyle modifications have been shown to have a potential significant role in improving post-CABG outcomes; thus, research that will effectively optimize and sustain the positive

effects of diet and exercise modifications will contribute to build the evidence for clinical practice.

RECOMMENDATIONS

In the current health care milieu, self-management behavioral interventions, including therapeutic diet and exercise regimens need to be used with the same vigor as medication therapy to improve long-term CABG outcomes and reduce health care costs. Several gaps in knowledge persist. A nutritious cardiac dietary program needs to be clearly described to patients preparing to undergo CABG surgery, with adequate methods for confirming understanding and ability to follow through with self-management of therapeutic diet regimens post-operatively and over the course of patients' lifetime.

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