

Research Article

Role of Nutrition in Coronary Bypass Surgery

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Abstract:

Preventive nutrition in cardiology has a bright future ahead of it, as there is abundant data to justify its importance in secondary prevention. Practitioners must appropriate these simple data to meet patients' expectations. Our work consisted in showing the interest of nutrition and moderate physical activity in the secondary prevention of risk factors of coronary disease after coronary bypass surgery. Our study included 20 patients, all of whom were operated on according to the same therapeutic protocol.

We will also review the effects of several nutrients, foods, and dietary patterns.

The results found are correlated with those found in the literature. The Mediterranean diet has accumulated the most evidence. The challenge is to change patients' habits, but this depends in part on the conviction and motivation of doctors.

Keywords: Acute coronary syndrome, Coronary arteries, Coronary artery bypass grafting, Mobilizing physiotherapy, Respiratory physiotherapy

Introduction:

Cardiovascular diseases are becoming more and more common throughout the world and in our country. They are the consequence of numerous harms that alter the quality of life and sometimes put the vital prognosis at stake.

In Algeria, approximately 26.1% of deaths are linked to cardiac pathologies, thus positioning themselves as the leading cause of mortality (Information Bulletin No. 4 of the EU delegation in Algeria, 2014)[1].

According to a survey carried out by the WHO in 2008, cardiovascular pathologies represent 38% of mortality cases.

They are responsible for 30% of deaths in France and represent the largest share of health expenditure (INSEE, 2008)[2]. With 25,000 procedures per year in France, coronary bypass surgery is a significant social phenomenon (Bader, 2009)[3].

The register of the Algerian Society of Cardiology identified tobacco as the main risk factor. High blood pressure and diabetes also constitute frequent risk factors in the Algerian population, with respectively 39.9% and 35.2% of patients affected.

The Mediterranean diet is the one that has accumulated the most evidence (LECERF, 2016)[4].

Physical activity is very important in preventing the progression of coronary artery disease both preoperatively and postoperatively. Less than 20% of eligible patients would participate. rehabilitation programs (Lavie, al., 2011)[5].

The objective of our work was to show the place of nutrition and physical activity in the secondary prevention of risk factors in order to avoid recurrence (restenosis) or damage to other coronary vessels after bypass surgery. coronary.

The success of nutritional education relies on patient compliance, awareness and motivation.

The challenge is to change patients' habits, but this depends in

part on the conviction and motivation of doctors.

The food pyramid is a reference tool for a balanced diet. (Food in Action, 2020)[6]

Materials and Methods:

Our study was carried out on 51 patients all from the same hospital structure taken at random. It is a retrospective study, this work was carried out on a matched pre- and post-operative sample. It allowed us to collect data on food consumption, physical activity, sedentary lifestyle, nutritional status and estimate the prevalence of risk factors by studying anthropometric parameters (weight, height), biological parameters (cholesterol, triglyceride, glycated hemoglobin). It also made it possible to carry out a statistical analysis using the Wilcoxon test.

The parameters selected for the statistical study are body mass index (BMI), cholesterol, triglyceride and HBA1C, physical activity and daily energy expenditure (DEJ).

The dietary assessment also allows us to calculate the total energy expenditure pre and postoperatively to better assess the quality of the diet adopted by our patients. Spending daily energy (average DEJ) for men is 2342kcal=9789kJ and for women, it is 1823 kcal=7620kJ

A pre-anesthetic consultation was carried out to assess the operative risk and estimate operative mortality (at 30 days) based on the different risk scores established by learned societies such as Euroscore (Nashef et al, 1999)[7].

Results:

The results found after a three-year follow-up for the first patient and six months for the last patient:

The male predominance was evident (Women: 23.5%, Men: 76.5%).

The average age was 64.45 years with extremes of 46 years for

the youngest and 84 years for the oldest.

Tobacco was found in 41% of patients.

More than half of the patients presented dyslipidemia (51%), type 2 diabetes was present in 75% of cases (HbA1c=7.5%) and half of the patients were hypertensive (57%).

Most of our patients were overweight since the average BMI was 28.42 kg/m² with an extreme of 37.1 kg/m². More than half of the operated patients had moderate physical activity, i.e. 53%. The average food intake over the 24 hours (according to the ciqual 2020 table) was 2508.2kcal. The diet was high in sugar and trans fats). Myocardial function was generally preserved at 55%.

Results of the effects of the Mediterranean-type diet and physical activity:

The post-operative food intake calculated over the 24 hours with a semi-salted diet was on average: 2289.64 Kcal. The BMI decreased by 2.2kg/m² (8.23%). The cholesterol level fell by: 0.22g/l (16.9%), The triglyceride level fell by 0.44g/l (33.8%), HbA1c decreased by

0.9% (13.6%) and physical activity increased by 16%.

The statistical analysis carried out using the Student test showed that all the parameters studied were statistically significant except for physical activity because the p value is equal to 0.106%.

Discussion:

The discussion focused on the different parameters studied, Indeed, for Obesity, our study showed a reduction in BMI of 8% compared to the preoperative BMI. It is an undeniable risk factor for coronary heart disease; it is statistically significant (P=0.002). It is a major modifiable risk factor (Eckel RH, all., 1998) [8] and abdominal obesity is a high-risk factor for acute coronary syndrome (Grundy SM, 2002) [9].

As for Dyslipidemia, our work revealed a drop-in cholesterol of 16.9%, triglycerides fell by 33%. The results were statistically significant for cholesterol since P = 0.005 and for triglycerides the P is equal to 0.003. Several studies, including the MESA study, showed that saturated fatty acids (meat products) had a deleterious effect (De Oliveira Otto MC, al., 2012) [10] and long-chain Omega-3 leads to a significant reduction in coronary risk, (Marchioli R, al., 2002)[11]

Our statistical study showed that type 2 diabetes is statistically significant (p=0.0006) and therefore a major risk factor.

A meta-analysis including more than 60,000 patients (Roffi M, 2011)[12], diabetes increases the risk of death at 1 year by 70% in ST+ SCA and by 20% in ST+ SCA. And that revascularization reduced mortality at 1 year (5.7% vs. 8.6%): ESC/EACTS, 2014[13]

High blood pressure is a major risk factor according to the literature. THE DASH Diet is the one that shows the most evidence for hypertension. It consists of portions of fruits and vegetables and low-fat dairy products and reduced salt intake. (Sacks FM, al. 2001)[14]

In our study, 69% of patients had a ½ hour/day walk. In fact, physical activity reduces sympathetic activity, increases parasympathetic activity because it stimulates the production of

anti-inflammatory markers (Das UN, 2004)[15]. It has allowed a 25% reduction in readmissions (Levin, coll., 1991)[16], Perk J, coll., 1990)[17]. Our study showed an increase of 16%, but Statistically, it is not significant because P=0.106

Conclusion

In light of our results which correlate with those found in the literature, we can say that secondary prevention of risk factors is the best guarantee of postoperative results.

Indeed, moderate physical activity, the Mediterranean type diet [18] adopted by the majority of our patients allowed an improvement in risk factors such as the reduction of obesity, cholesterol, triglycerides, balancing a diabetes and normalization of blood pressure.


Further studies should be carried out with a larger sample of patients to see if the trend of improvement is confirmed.

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