

Wirsung's duct, mechanical jaundice, portal hypertension in chronic pancreatitis with portal vein compression, duodenum compression, external or internal pancreatic fistula.

In 2016, 13 (54,17 %) operations for chronic pancreatitis were performed. The average bed-day hospital stay was 38.17 days.

In 2017, 6 (25 %) Beger surgeries were performed. The average bed-day during this period was up to 25.22 days.

In 2018, 4 (16.67%) Beger and 1 (4.16%) Whipple surgeries were performed, all for chronic pancreatitis. Relaparotomy was performed after Whipple's operation because of postoperative complications. Patients were hospitalized for 22 to 46 days without complications. But the patient who underwent relaparotomy was hospitalized for 46 days.

The total average hospital bed-day was 34.62 days. Such a long stay was due to preoperative patient examination (up to 12 days) to rule out pancreatic tumor. Postoperative results were good, there was no mortality during the study years.

### **Conclusions**

Preliminary analysis of surgical interventions on the pancreas showed that the main method of surgical treatment of chronic recurrent pancreatitis was duodenum-saving operation according to Beger. There were no lethality and postoperative complications in patients after Beger surgical interventions during the period under study. The preoperative period should be shortened by performing preoperative examination on an outpatient basis in a specialized institution.

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## **CORONARY ARTERY BYPASS GRAFTING VS PERCUTANEOUS CORONARY INTERVENTION IN ASIA**

### **Introduction**

Cardiovascular disease (CVD) was the leading cause of death in Asia as of 2019. Among the 10.8 million deaths worldwide 58 % occurred in Asia. 47 % of CVD deaths were due to ischemic heart diseases [1].

Revascularization in IHD is achieved by Coronary artery bypass grafting (CABG) a major surgical procedure where diseased coronary artery is bypassed using arterial or venous graft most commonly internal thoracic artery and percutaneous coronary intervention (PCI), a minimally invasive procedure in which a balloon catheter widens the artery and a bare metal stent (BMS) or drug eluting stent (DES) is placed. CABG is mainly recommended in left main (LM) coronary artery stenosis > 50 %, triple vessel disease (TVD) > 70 % with/without left anterior descending artery (LAD), two vessel disease, LAD + major artery, one or more stenosis > 70 % with significant anginal symptoms despite medical therapy, one vessel disease > 70 % in a survivor of cardiac death [2]. Medical therapy is indicated for both CABG and PCI as the underline process of atherosclerosis remain unaffected, hence for secondary prevention and risk reduction optimal doses of antiplatelet drugs, beta blockers, angiotensin converting enzyme inhibitors, angiotensin II receptor blockers and lipid lowering drugs. CABG have decreased by third over the past 10 years linked to the accelerated use of minimally invasive stents with a quicker recovery period and lower risk of bleeding, stroke, postoperative delirium, wound infection, graft failure and need for mechanical ventilation > 48 hours [5]. Even though the outcome of intervention depends on individual comorbidities, risk factors, complexity of lesion, choice of patient, overall, 5-year survival rate is higher for CABG than DES and the need for revascularization is higher in BMS, DES and least in CABG.

### ***Goal***

To evaluate the usage of CABG and PCI in treatment of coronary artery diseases in Japan, Iran, India and evaluate the mortality rate, complications, associated risk factors in each country. Study the impact of socioeconomic condition on the choice of treatment and prognosis of intervention.

### ***Materials and research methods***

Assessment of Japanese Nationwide PCI registry and Japan adult cardiovascular surgery database 2018/2019. Analysis of medical, scientific literature on India, Iran and Asia from 2017–2019 on this topic.

### ***The results of the research and their discussion***

In accordance with a study done in Isfahan, Iran mean age of patient was  $64.53 \pm 10.2$  years for with 76.4 % men. 50.2 % have undergone PCI, 49.7 % CABG. Majority of PCI done through femoral artery approach. Associated comorbidities include hypertension in 40.1 %, diabetes mellitus 36.3 %, hyperlipidemia 18.4 %, obesity 14.4 %, smoking 10.9 % and history of myocardial infarction (MI) 4 %. 59 % had stable angina and 23.9 % had unstable angina on admission. Most common lesion included LM in 41.8 % and TVD in 81.3 %. Patients with LM and single vessel, LM and two vessels, and isolated LM were significantly dominated in CABG while PCI was largely used for three vessel diseases. Both PCI and CABG show equal mortality rate of 2.3 % and equal myocardial infarction rate for both interventions. PCI shows increased incidence of heart failure 2.3 %, stroke 2.3 %, chest pain 47.1 % and 10.3 % increased hospitalization due to cardiac problems [4, 6].

With approximately 200,000 PCI registered annually, Japan has a high PCI rate of 74 % with 13.5 % elective and CABG of 26 %. Mean age of  $68.15 \pm 9.4$  and 72.5 % affected male. Average body mass index (BMI)  $23.7 \pm 3.4$ , 72.5 % of the population with a BMI less than 25.0 kg/m<sup>2</sup>. Most prevalent comorbidities were hypertension 76 %, dyslipidemia 66.1 %, 51 % diabetes, 24.3 % smoking and 22 % history of MI, 13.5 % previous stroke. 66.34 % presented with stable angina, 10.3 % with silent myocardial ischemia. Typical lesion observed was three vessel disease 69.5 %, chronic total occlusion of LAD 25 % out of which 89 % treated with CABG and 62 % off pump CABG. 52 % of bifurcated lesions treated with PCI. As for the access site radial artery approach was recommended. Internal mammary artery usage for CABG is 96 %. Mortality rate, stroke, heart failure, MI post intervention did not show significant

difference, although rate of cardiac death was 0.5 % higher in PCI. Need for revascularization in 5 years was 25.7 % higher for PCI than CABG [6,7].

In India 57,512 PCI were performed in 2018 with decrease by 3.6 % from 2017. Number of bypass surgeries are gradually ascending with approximately 60,000 surgeries performed annually. 60 % of patients undergo off-pump CABG with predominant usage of internal mammary artery grafts. Mean age of population  $61.75 \pm 8.78$  years with 10 % < 40 years and 10 % of population above 70 years. High incidence among male 82 %. Prevalence of comorbidities dyslipidemia 86 %, hypertension 69.12 %, diabetes 66 %, history of past MI 61 %, peripheral vascular disease 15.5 %, smoking 40 %. Main indication for PCI included post MI 28.91 %, unstable angina 23.73 %, stable angina 18.85 %. Single vessel diseases contributed to 75.27 % of PCI, LAD in 46 %, LM 2.45 %, bifurcation 4.32 % and multivessel/three vessel diseases 24.63 % thus indicating that majority of multivessel diseases approximately 75 % are treated with CABG. Mortality rate of PCI 2.56 %. Real world data about usage of CABG, characteristic lesions treated and its outcome in India is limited with no proper study done in the past 10 years [8, 9].

Majority of coronary artery diseases in Japan and Iran are treated with PCI while, the use of CABG is still prevalent in India unlike the western world. In India cost of bypass is 4.5 times higher than PCI, therefore patients are more prone to undergo CABG due to the low socioeconomic condition which would justify the high CABG rates and, Indian made stent usage is adopted which are less expensive [9]. Both India and Japan utilize modern radial artery access for PCI due to reduced hematoma formation, low bleeding complications and crude mortality rate [8, 7]. 64 % of PCI in Iran are carried out through femoral artery approach with 95 % success rate although no statistical data was available for its indication. Lowest mean age is observed in India with 80 % of affected population between 40–70 years and in all three countries more than 70 % affected male. High prevalence of dyslipidemia, hypertension, diabetes, obesity within the Asian population due to sedentary lifestyle, excess consumption of calories, saturated fats, simple sugars, salt and low fiber intake may lead to increased risk of restenosis and demand for revascularization [8]. Japan shows relatively low risk of restenosis due to their lean and balanced diet and increased physical activity indicated by 72.5 % population within normal BMI. Although both stents and CABG provide revascularization to the affected flow limiting lesion, only CABG provide protection against non-flow limiting lesions which would account for the high cardiac related morbidity and mortality rate in DES [3]. Despite the general decline worldwide, off pump CABG is performed widely in Asia 62 % in Japan and 60 % in India due to shorter operative time and low procedure cost [8, 6]. Concerns arise regarding the quality of anastomosis, tendency of incomplete revascularization, patency of graft and increased need for revascularization. CABG is generally difficult due to the small caliber of coronary vessels in Asians [8]. Even though CABG is indicated for three vessel diseases, PCI was the main method of treatment in Iran with a lack of clinical data on the outcome of the intervention.

The development of IHD and the number of CABG, PCI interventions are gradually increasing in Asia and proportion of premature development of IHD and premature CVD deaths were substantially lower in high income countries like Japan and higher in middle and low income countries [1].

### **Conclusions**

Clinical registries have to be maintained by each country to assess the effectiveness of CABG, PCI procedures as well as to improve the quality of care and analyze the effect of treatment, thereby selecting the most appropriate method for treatment in the respective country according to their socioeconomic condition. Government funded screening programs for early detection and prevention of IHD, which will lead to lower CABG and PCI interventions lowering the huge economic burden on the health care system. Steps should be taken to increase public awareness about the increase risk of IHD, change of diet and lifestyle.

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## **PYOGENIC LIVER ABSCESS AS AN IMMEDIATE POST COVID-19 COMPLICATION**

### ***Introduction***

Since the beginning of the COVID-19 pandemic in 2019, doctors were forced to battle a wide range of post infection complications as a result of the damage done by the SARS-CoV-2 virus within the human body. Initially known as a respiratory disease, COVID-19 is now proven to have systemic infectious and inflammatory effects as well that lead to multiorgan effects [3]. The gastrointestinal system is most commonly affected with its signs and symptoms frequently found in COVID-19 patients. Hepatobiliary complications are highly unusual. One such unusual post-infection complication is the formation of pyogenic liver abscess. A pyogenic liver abscess is an infectious space occupying lesion filled with pus within the liver which causes a variety of symptoms from mild malaise and fatigue lasting from several days to months to showing signs of right hypochondriac pain accompanied by fever, chills, vomiting and weight loss. It has an annual incidence rate of about 2.3 cases per 100,000 individuals with males more affected than females in a ratio of 1.5:1 [2]. An increased incidence is seen in the elderly population ranging from 40-50 years old, diabetics and within individuals who are immunocompromised. Pyogenic liver abscesses that form as a consequence of COVID-19 often go unnoticed and neglected, contributing to the high mortality in patients.

### ***Goal***

This article reviews several cases of pyogenic liver abscess occurring as an immediate post complication of COVID-19 and aims to help understand the link and any possible underlying