

## Elevated Left Ventricular Filling Pressure during Angina

Sir,

It is well-known that acute myocardial ischemia causes elevated left ventricular end-diastolic pressure (LVEDP),<sup>1,2</sup> but rarely documented during day-to-day catheterization procedures. We present a left ventricular (LV) pressure recording from a patient with coronary artery disease (CAD), who developed angina following coronary angiography with marked raise in left ventricular end-diastolic pressure (LVEDP) which normalized after sublingual nitroglycerin.

A 50-year-old male hypertensive presented with exertional angina. Clinical examination, electrocardiogram, and echocardiogram were normal including normal left ventricular systolic and diastolic function. Diagnostic coronary angiogram was done using non-ionic contrast that showed severe double vessel CAD. Pigtail catheter was introduced into the LV prior to LV angiogram. The LV pressure was 140/8 mmHg. The patient then started to complain of severe chest pain with monitor leads showing ST depression with no change in heart rate. The LV pressure recording was done during angina and showed markedly elevated LVEDP (40 mmHg, Figure 1). He was immediately given 2 puffs of sublingual nitroglycerin spray (0.8 mg) for the relief from angina. The LV pressure recording showed normalization of LVEDP (7 mmHg, Figure 2).

Pacing-induced and coronary occlusion-induced experimental ischemia studies have demonstrated raise in LVEDP during myocardial ischemia.<sup>1,2</sup> Acute myocardial ischemia causes elevated LVEDP due to an increase in the stiffness of the LV and subsequent diastolic dysfunction.<sup>1,2</sup> Studies have demonstrated that ischemia causes asynchrony in regional filling leading to delayed filling of the ischemic myocardial segment with delayed and incomplete left ventricular relaxation and wall motion contractility along with loss of elastic recoil and thus increasing the chamber stiffness. Exercise-induced ST depression is caused by subendocardial ischemia due to increased LVEDP. Nitroglycerin reduces LV pre-load, afterload, and myocardial wall tension, favouring redistribution of flow to the subendocardial myocardium. Furthermore, nitroglycerin has vasodilatory effect, increasing coronary flow to hypo-perfused regions and flow through collaterals.

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**Figure 1:** Left ventricular pressure tracing on a scale of 0-200 mmHg showing marked increase in LVEDP during angina. Also shown is ischemic ST depression in the electrocardiogram.



**Figure 2:** Left ventricular pressure tracing showing normalization of LVEDP following sublingual nitroglycerin.

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## HBV Vaccination Status Amongst Dental Schools of Pakistan: Where do we Stand Today?

Sir,

Hepatitis B Virus (HBV) is considered a major occupational risk agent for dental health care workers. Dental team members are at much higher risk of contracting this infectious disease than the general population.<sup>1</sup> Its prevalence among dentists varies from 2.7% to 23.5% for those with clinical activities and from 12.2% to 44.5% for those who have surgical specialties. It is considered the most common and serious infectious illness, which is transmitted in clinical dental practice.<sup>2</sup> The risk of exposure is suggested to be higher in dental undergraduates than that in qualified dental practitioners due to the difference in their manual skills, limited clinical experience and working without assistance.<sup>3</sup>

In Pakistan, there is a national policy of HBV vaccination for newborns, which provides free vaccinations during childhood.<sup>4</sup> Although, there is a policy regarding the mass vaccination against HBV and measures have been taken to implement immunization policies, Pakistan has not reached 100% coverage.<sup>5</sup> However, there is lack of information about the vaccination status among dental students who are at high risk of contracting the disease. Such data would be important for the health authorities to evaluate their vaccination strategies and could be considered for future recommendations.

The objective of this study was to assess the vaccination status amongst students of various dental colleges in Karachi, Pakistan. The relationship between the HBV vaccination status and the year of course, and the school being public or private were analysed.

This study was conducted in Pakistan between March and May 2008. The main study group was the third and fourth year dental students, 5 dental colleges in Karachi agreed to participate. These included Hamdard Dental College, Baqai Dental College, Jinnah Dental College, Fatima Jinnah Dental College and Karachi Medical and Dental College (public sector). The study adopted a questionnaire modified from that developed by Stewardson and Palenic in 2002.<sup>3</sup> The parts demographic and HBV vaccination status from the original questionnaire were administered.

Participants' consents were taken prior to administering the questionnaire. Complete anonymity and confidentiality were ensured. Chi-square test was used to identify the association between the vaccination status among 3rd and 4th year, male and female students in

public and private dental colleges. Statistical significance was defined at  $p < 0.05$ .

Response rate of the study was 83% (319 out of 385). None of the dental college exhibited 100% vaccination rate. Sixty eight percent of the students reported receiving HBV vaccination at some stage of their professional education. Hamdard Dental College and Karachi Medical and Dental College had significantly lower percentage of vaccinated students when compared to others ( $p > 0.05$ , Figure 1). Private colleges demonstrated higher vaccination rate when compared to that of the single public sector college. This may be attributed to more emphasis given to educate students regarding the importance of HBV vaccination; other contributing factor can be the strata of students enrolled in the private dental school that exhibit higher socio-economic background.

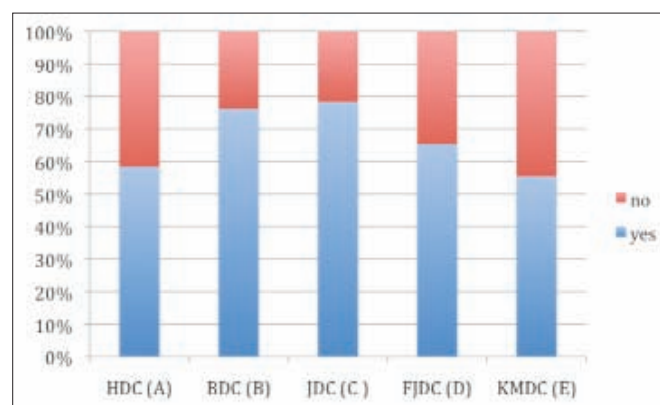


Figure 1: Percentage of HBV vaccinated and non-vaccinated students in 5 dental colleges.

The vaccination status according to the year of course showed that HBV vaccination coverage of 4th year students (77%) was significantly higher than that of 3rd year students (60%,  $p > 0.05$ ). This may be attributed to higher level of knowledge gained during their clinical rotations.

The cost of vaccine and lack of free vaccination program might be one of the factors contributing to low vaccination rate in general.<sup>6</sup> It is the responsibility of dental schools to ensure the safety of the students by requiring mandatory HBV vaccination prior to clinical exposure. More emphasis on the importance of vaccination could further help in increasing the acceptance of HBV vaccination among students and will encourage them to get vaccinated prior to starting clinical years.

In conclusion, it is required to implement a hepatitis B vaccination program to achieve the long-term objective of preventing virus transmission in all age groups with subsequent eradication of the disease.

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