



Opium and the Heart: Common Challenges in Investigation

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A substantial increase in the cultivation of opium poppies in recent years has led to a sharp rise in the production and consumption of opiates to such an extent that opioid abuse and dependence are now amongst significant social problems the world over.¹⁻⁴

More than 90% of the world's opium is produced in Afghanistan and distributed across the world through extensive networks of drug trafficking. It is, therefore, inevitable that the neighboring countries such as Iran, Pakistan, and southern republics of the former Soviet Union should bear the brunt.⁵

Opiate addiction has many health-related consequences, into which the medical community needs to delve. Indeed, opium has not been the focus in the literature on opiates thus far and a vast majority of publications in this field are about synthetic and non-synthetic opium derivatives and not opium itself. Furthermore, for several reasons available data on opium are not conclusive for practical purposes.

One of the most investigated medical problems related to addiction is opium use in cardiac patients.⁶⁻¹² Studies show that the rate of opium consumption amongst cardiac patients is substantially higher than that in the general population, underscoring the significance of studying this group of patients.^{2,13} It is, therefore, very important to find out exactly why cardiac patients consume opium more than the general population. Briefly, we know that opiates in general and opium in particular are different from other substances with regard to their potent analgesic effects. As angina is the cornerstone of heart disease, the higher rate and/or dosage of opium consumption amongst cardiac patients is predictable. However, investigating opium consumption is not as simple as it looks; there are concerns about precise dosage, route of consumption, coexisting usage of other substances such as tobacco, and last but by no means least the definition of opium abuse and/or dependency. Overall, although the specifications of opiate misuse compared to those of other substances mandate independent studies on opiates, there are

critical points in the assessment of cardiovascular patients that affect the results and conclusions.

Opium available on the market in most countries is distributed and consumed illegally. Opium is not similar to pure opiates such as morphine and heroin as it is a mixture of different substances with different effects. The most important extracts of opium are morphine and codeine, which are effective analgesics. Other alkaloids such as papaverine and noscapine, as well as inert substances and various adulterants, are on the list of the complex constituents of opium which drug users tend to consume.¹⁴ The impurity of opium in use is at least 20%.¹ Different substances added to opiates may produce a variety of effects, interacting with those of opium and other opiates. Examples of opiate adulterants are different benzodiazepines, clonidine, antidepressants, and analgesics.¹ Withdrawal symptoms of opioid abstinence may manifest through the symptoms of abstinence from these impurities. As opium is amongst illicit drugs, not only is there no way to find the content but also the dosage of adulterants is not similar and/or constant in all samples. The families of the patients cannot usually solve the problem as they do not exactly know what their patient consumes. As a result, it should come as no surprise that they usually do not seek treatment and only an acute case of life-threatening intoxication with a high dose of some dangerous impurities such as lead may prompt them to consult a physician.¹⁵⁻¹⁷

The accuracy of opioid usage self-report has already been confirmed, but further hard evidence is required to dispel all concerns.¹⁸ A case in point are the reports that addicts, especially during withdrawal, exhibit psychiatric disorders in character and behavior^{19, 20} and that the rate of mood disorders is higher amongst addicted patients.²¹

With respect to the effects of opium on the cardiovascular system and cardiovascular disease risk factors, there is always a confounding factor, namely coexisting cigarette smoking, which itself is a classic risk factor for cardiovascular disease. Reported complications in opium addicts such as loss of

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weight and loss of appetite are common amongst smokers as well.²² It is worthy of note, however, that since the number of non-smoking opium addicts is not high, studying isolated opium addicts is not easy.^{6,7,9}

Calculating the dosage of a consumed drug is another dilemma which researchers probing into opium addiction face. There are different ways of opium consumption: inhalation (which is the most common way to begin recreational use), oral, and intravenous. Opium consumption through inhalation is normally done through a Vafour or Sikh-sang or through a special form of opium called sheereh. As they become tolerant to the inhalational route, opium addicts tend to resort to the oral and intravenous routes gradually.²³ Opium absorption and blood level of its main sub extract, i.e. morphine, are different in the foregoing routes of consumption. These routes are also the source of change in cardiovascular risk factors such as blood sugar and lipids.²⁴

The pack-year definition for opium consumption, which is utilized by some researchers,⁸ seems practical but is somewhat misleading. While there is a direct relationship between smoking pack-year and known complications such as cancer, there is no similar pattern for opioids. What renders judgment even more complex is the impurity of opium.

Studies hitherto performed on substance abuse show that the most common criteria for patient detection are DSM IV and DSM IV-TR definitions, which are identical [(American Psychiatric Association. 1994. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition: DSM-IV. Washington D.C.: American Psychiatric Association pp 181-183) and (American Psychiatric Association. 2000. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision: DSM-IV-TR. Washington D.C.: American Psychiatric Association)]. Be that as it may; these criteria are particularly deficient in differentiating drug abuse and dependence in that they are subject to change according to the proposed definitions.²⁵ Recreational use of opium, which is reported by many patients, is categorized under the definition of substance abuse, but it is not an exact classification. Indeed, most of these individuals are opium addicts. A better categorization could be regular and irregular consumption as it is an easier question for patients to answer.⁷ Another factor that should be taken into consideration is dependency to opium adulterants and not opium itself, which is normally controlled by the patient's use of medications such as benzodiazepines.

The analgesic properties of opium and its sub extracts such as morphine have long been the focus of considerable scrutiny. It is believed that using morphine sulfate, which is a classic treatment for angina pectoris, myocardial infarction, and perioperative pain, does not cause addiction.^{26, 27} The high rate of opium consumption in cardiac patients is attributable in part to this effect of opium. Accordingly, from a methodological point of view, it is very important in cardiovascular studies to differentiate primary opium-

dependent patients from patients who have started opium after pain experience. In painful disease state, the misleading term "tolerance" may be mixed up with "dependence" or "addiction" by mistake. Clearly, it is still regarded as willful drug consumption and is not considered a definition of opioid-use disorders. As DSM V has emphasized, "Tolerance is not counted for those taking medication under medical supervision such as analgesics..."²⁸

To conclude, studying the relationship between opium consumption and cardiovascular diseases has complex methodological parameters, which affect the findings directly. Taking these points into consideration facilitates a comparison of different studies in a potential review or meta-analysis and helps us find the best way to manage this group of patients.

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