disorders arising from chronic cocaine use, which triples the risk of acute myocardial infarction, and acute cocaine use, which increases the complications and in-hospital mortality of infarction. We are therefore of the opinion that it is essential to specifically question patients with suspected myocardial infarction about chronic cocaine use and measure drug metabolites in urine.

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Is Cocaine-associated Acute Myocardial Infarction the Same as Myocardial Infarction Associated With Recent Cocaine Consumption? Response

¿Los trastornos por cocaína asociados al infarto agudo de miocardio son lo mismo que el infarto de miocardio asociado al consumo reciente de cocaína? Respuesta

To the Editor,

We agree with Carrillo et al with regard to the importance of the information bias when dealing with cocaine use. Nevertheless, other factors also explain the differences between our results[1] and the findings reported in their study,[2] carried out in a coronary critical care unit (CCCU). In a study by Gupta et al[3] involving 102 952 acute myocardial infarction patients in 364 hospitals participating in the American College of Cardiology Registry of the United States, only 924 patients (0.9%) of all ages were cocaine-positive, defined as use of the drug within the preceding 72 hours or its presence in urine.

Extrapolation of the results of a study involving 87 hospitals (Spain) or 364 hospitals (United States)—in patients with confirmed acute myocardial infarction from different geographical areas, treated in different types of hospitals and departments, and of different ages—to the findings in a single CCCU in which acute coronary syndrome was studied in patients under 50 years of age is problematic. It would also be risky to extrapolate the results of a single CCCU to all the patients hospitalized for acute myocardial infarction.

We were surprised by the high mortality rate among cocaine-positive patients in the CCCU. There were no statistically significant differences between the study by Gupta et al[3] and ours.[1] Hollander et al[4] reported a 0% mortality rate among cocaine-positive patients, which could be due to 2 different circumstances:

1. In their study, Carrillo et al[2] performed a simple analysis based on 2 deaths among 24 cocaine-positive patients and 3 deaths among 379 patients with a cocaine-negative urine test. If we calculate the odds ratio (OR) and use an exact method to determine its 95% confidence intervals (CI), we obtain an OR = 11.4 (95% CI, 0.89-103.3). These authors only evaluated the statistical significance ($P = .03$), but overlooked the imprecision of the OR which, with a 95% CI, indicates that a cocaine-positive urine test can be associated with an increased risk of death, with no effect at all (OR = 1) or, surprisingly, with a reduced risk of death (OR = 0.89-0.99).

2. Our study[1] and that of Gupta et al[3] (but not that of the above-mentioned authors) involved a multivariate analysis that included important prognostic variables (age, sex, other addictive disorders, comorbidities, complications, analytical findings, and treatments, depending on the study).

For all these reasons, we consider that, to calculate the risk of mortality attributable to cocaine use in patients with acute coronary syndrome admitted to a CCCU, the sample should be large enough to guarantee the statistical power of the study, the accuracy of the estimators of the effect size, and control of confounding bias by means of a multivariate analysis of the results.

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The Epidemiology of Clinical and Health Effects Associated With Cocaine

Epidemiología de los efectos clínico-asistenciales asociados al consumo de cocaína

To the Editor,

For the first time in Spain, a large population-based multicenter study confirmed the prolongation of hospital stay and has quantified the related costs in patients admitted for acute myocardial infarction associated with cocaine use. Moreover, the report provides complementary data on annual hospital admissions attributable to cocaine (0.44%) and on the incidence of acute myocardial infarctions due to its consumption (2.2%).[1] However, we would like to comment on certain aspects that we believe could complement the epidemiological data provided in that report.

As the authors indicate in their article, there may be a risk of underreporting and underestimation of the prevalence, as we do not know whether the diagnosis of cocaine use was corroborated by an analytical study or was based solely on the patient's medical history. In the series described by Rodríguez-Esteban et al[2] involving hospitalized patients with acute coronary syndrome, the prevalence of cocaine use was somewhat higher (3.7%), although that study showed the same methodological bias. These authors carried out a greater number of coronary angiographies (94% vs 82.4%; $P < .01$), but most of the patients had no significant coronary lesions or had single-vessel disease. Unfortunately, the authors did not evaluate the length or costs of the hospital stays.

The 1996-2009 Report on Emergency Hospital Care for users of psychoactive substances issued by the Spanish National Plan on Drugs,[3] based on data from 2009, included patients with diagnoses coded according to the 10th revision of the International Classification of Diseases (ICD-10) and whose medical history made reference to cocaine consumption. In this report, the latter was the most commonly used drug (61.3%), and the incidence of hospital admission ranged between 7.2% and 9.8%, depending on whether there was a direct or a secondary relationship between cocaine use and the need for hospital care. In a review carried out by our group based on data on emergency care in cocaine users,[4] cardiovascular symptoms were detected in 30% (standard deviation, 22.7%).

As the authors point out, there may also be cases of undisclosed cocaine use which, according to our findings in emergency departments, ranges between 6.4% and 21%, depending on the populations studied and the diagnosis or the reported reason for consultation.[5–7] Likewise, some patients may have taken a substance other than cocaine.[8] However, in this case, it would have no bearing on the phenomenon of cardiovascular risk associated with chronic use or on prevention strategies. As the authors indicate, all this may increase the impact of cocaine, although perhaps the economic costs could go in the opposite direction.

In cost analyses, it is also necessary to take into account previous visits to the emergency department by these patients, with the resulting health care expense or cost associated with cocaine consumption. Other elements to consider are cases of sudden death in the out-of-hospital setting[9] and repeat emergency department visits.[10] Lastly, since the study covered a 3-year period, some patients probably experienced more than one coronary ischemic event requiring hospital readmission.[11]

Finally, we agree with Gili et al that interventions aimed at identifying the risks associated with the use of these substances and the treatment of addiction are essential for the prevention of recurrence of cardiovascular events in this patient group, and an important part of the hospital stay should be devoted to these aims, although it may prolong hospitalization.[10]

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