

Letters to the Editor

Is there any relationship between drug addiction and the development of a signet ring cell carcinoma of the stomach?

Key words: Gastric cancer. Signet ring cell carcinoma. Drugs. Nickel.

Dear Editor,

Signet ring cell carcinoma (SRCC) of the stomach generally has a very poor prognosis because it is usually diagnosed late, when the tumor has penetrated the serosa of the stomach and has spread (1). The etiology of this neoplasm is not clearly understood except in the few cases linked to hereditary factors (2). Nickel is a heavy metal whose carcinogenic properties have been widely studied due to the negative impact on workers exposed to this metal. Stomach and lung cancers are the neoplasias that are most frequently related to occupational exposure to nickel compounds (3,4).

However, there are other possible sources of nickel accumulation in the human body which are not linked to occupational exposure. Since the emergence of human immunodeficiency virus (HIV), intravenous injection of drugs has declined significantly in Spain and it has been replaced by the smoking route of administration (5).

We present three patients who were diagnosed with gastric SRCC in our hospital and the possible relationship between a history of heroin smoking and long-term exposure to nickel.

Case report 1

Forty-year-old male, smoker of 20 cigarettes per day, ex-cocaine addict and heroin smoker. He was treated with neoadjuvant

chemotherapy and a total gastrectomy. The postoperative tumor staging was T2bN3M1.

Case report 2

Fifty-one-year-old male, smoker, alcoholic, ex-cocaine user and ex-heroin smoking addict. He was operated on and several nodules of peritoneal carcinomatosis were resected during the surgical procedure. After that, a total gastrectomy was carried out. The final staging of the specimen was T4bN3M1.

Case report 3

Thirty-seven-year-old man who visited the emergency department several times due to severe musculoskeletal pain and weight loss. Finally, a gastric SRCC with bone metastases was diagnosed and the patient was treated with palliative chemotherapy. His medical history revealed smoking and addiction to drugs, which he smoked or snorted.

Discussion

None of the three patients had a family history of gastric cancer and they were free of infections related to parenteral drug use. Nevertheless, it is common to use pieces of nickel scourer mixed with heroin when this drug is smoked (5). Therefore, there was probably a repeated oropharyngeal mucosa contact with nickel in the three cases.

How does this relate to the development of such an aggressive form of gastric adenocarcinoma? One hypothesis is that for years high amounts of nickel could reach the stomach through saliva, where it is held in gastric mucosa and can have a carcinogenic effect. Nickel promotes hypoacetylation of histones and hypermethylation. The action of tumor suppressor genes is interfered with and, therefore, there is a stimulus for the development of malignancies.

More robust and extensive epidemiological studies are required to confirm the association between a smoking heroin addiction and gastric cancer.

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