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**Risk factors of systemic candidosis among intra-venous drug users**

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**Abstract**

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**BACKGROUND:**

Systemic candidosis (SC) is becoming of immediate concern in intra-venous drug users (IDU). Although non injecting substitutive products, such buprenorphine high dosage (BHD), have been promoted, several cases of SC are still identified, suggesting source of cross-infection among injectors.

**OBJECTIVE:**

The aim of this study was to identify risk factors (products or practices) of SC among IDU.

**METHODS :**

A national multi centre case-control (1:2) study was performed in French hospitals between 2001 and 2005. Case was defined as an incident SC diagnosed according to standard clinical and microbiological criteria. Controls were selected among IDU following the case in outpatient clinic. A standardized form was filled by referent physician including patient characteristics, history of injection practices, BHD and other injected products consumption.

**RESULTS :**

Overall 150 patients were included (49 cases : 101 controls). Mean time of past IDU was 12.1 (SD  $\pm$  8.7) years. Sixty-three percent were BHD injectors for a mean time of 3.5 (SD  $\pm$  2.3) years. Regardless of the injected product, HIV negative serology, removing cigarette filter with teeth, licking needle, and dirty hit after injection were significantly more frequent in cases than in controls (all  $p < 0.05$ ). Concerning no BHD products, mixing drugs with lemon, and re-using or licking half-lemon were significantly associated with SC (all  $p < 0.05$ ). In multivariate analysis, removing cigarette filter with teeth (OR = 2.5, 95% CI [1.1-6.1]), licking needle (OR = 2.7, 95% CI [1.1-6.4]) and dirty hit after injection (OR = 3.4, 95% CI [1.4-8.2]) remained the only independent risk factors of SC.

**CONCLUSION :**

This is the first case-control study showing that IDU should avoid contact between mouth and injecting materiel (including lemon). In addition, IDU should use sterile single-use filter regardless of injected products. The use of a sterile acid product, such as citric or ascorbic acid dose, should be an alternative mean whenever an acid dissolution is necessary. Recent dirty hit event should be considered as a predicting factor of developing SC.

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