Original Article

A study on the colonization of *Pneumocystis jirovecii* among outpatients during cancer chemotherapy and among healthy smokers

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**Abstract**

**Aims:** *Pneumocystis jirovecii* (PJ) is regarded as an agent of fungal infection and in cases of pneumocystis pneumonia (PCP) in immune-compromised patients including cancer patients. It is not clear what kinds of cancer, treatments, and environment need prophylaxis for PCP. In this study, we have analyzed the detectability of PJ DNA from sputum, and discussed prophylaxis and risk factors regarding PCP.

**Methods:** A total of forty-nine materials (twenty-four from outpatients during cancer chemotherapies and twenty-five from healthy control subjects) was collected. Their PJ DNAs were amplified using nested PCR with specific primers of the PJ gene (the mitochondrial small subunit rRNA gene).

**Results:** PJ DNA was detectable in 46% of specimens (sputum) from cancer patients during chemotherapies, and incidences of not significantly different among types of cancer and chemotherapy regimens. Prophylactic use of Sulfamethoxazole/Trimetoprim (ST) reduced the detection of PJ DNA. Detection of PJ DNA is not high among healthy non-smokers (20%) and high among healthy smokers (47%).

**Conclusions:** Prophylactic use of ST may be necessary for cancer patients during chemotherapies. Also, smoking may be associated with PJ colonization in the airway and air vesicles, and may increase the mortality rate for PCP. All patients undergoing cancer chemotherapies should cease smoking.

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