

*KONSENTRASI LOGAM BERAT NIKEL (Ni) DALAM DARAH TEKNIKER GIGI
YANG BEKERJA PADA LABORATORIUM DI SURABAYA*

(CONCENTRATION OF HEAVY METALS NICKEL (Ni) IN BLOOD
DENTAL LABORATORIST WORKING AT A LABORATORY IN
SURABAYA)

ABSTRACT

Background Dental laboratorist use much of nickel in the manufacture of metals cast. Nickel is one of the carcinogenic material if entering into the body. According to the ministry of the state and living environment in 1997, nickel belonged to clusters of extremely toxic. Nickel can get into the body through inhalation, food consumption, and skin absorption. The entering route of nickel into the cell is specified by its chemical form. The main nickel transportation in blood are protein (albumin), histidine, and α 2-macroglobulin in form of nickel that has been bonded with protein (albumin), histidine, and α 2-macroglobulin and it will be distributed into all of tissues. Based on the result of preliminary experiment that has been done on July 8, 2012 in Balai Besar Laboratorium Kesehatan Surabaya, four samples have amount of metal exceeding the normal limits inside the blood, which are ,00036%, 0,00034%, 0,00033%, dan 0,00035%. Dental laboratorist is exposed by particulate heavy metals nickel into the body due to lack of Operational Standard Procedure that is used by dental laboratoriest. **Purpose** The purpose of this study is to find the high level of heavy metals of nickel in the dental laboratorist's blood i.e $>0,00023\text{g/L}$. It can give rise to the symptoms of an acute dental laboratorist effect in the body. **Material and Method** 23 blood samples were taken from dental laboratorists that are working at a laboratory in Surabaya and the test used spetrofotometri absorption atoms graphite furnace methods. Chi-Square was used to determine the relationship between nickel and the appearance of symptoms in the body dental laboratorist. **Result** There are significant differencies $p = 0,014$ and $p = 0.008$. **Conclusion.** The high level of heavy metal nickel in blood ($0,00023\text{g/L}$) is related to the appearance of symptoms tremor and nausea on dental laboratorist. The use of self protecting devices (APD), especially protective mask, that is used by dental laboratory while he was working, did not occupied the standard.

Keywords: Concentration of heavy metals nickel in blood, nickel toxicokinetic, metals cast