As attempted cessation on tobacco is further perturbed

Life, Friendship

As the pattern of use isestablished, John’s attempted cessation on tobacco is further perturbed byconditioned tolerance. John describes that in certain situations such as whenhe was drinking alcohol, he would consume many more cigarettes. When he hasquit smoking, he experiences greater unease and stronger cravings, and finds itparticularly hard to avoid smoking when he is out having a beer with hisfriends. Both conditioned tolerance and negative reinforcement can beidentified as the learning phenomenon that leads to the pattern of relapse inthis case. Conditioned tolerance as explained by Macrae et al (1987) involveshomeostatic process by which animals maintain their internal environment withinacceptable limits.

As drugs produce pharmacological effects on the body, animals react to the effects with compensatory mechanism that reduce the drug’seffects. In addition to reacting to disruptions of homeostatic systems resultedfrom acute drug taking, animals also learned association between significantcues with drug taking behaviour, and through Pavlovian conditioning theirbodies learn to anticipate the effects when conditioned stimuli are present. Overtime, tolerance on particular drug will occur as the strength of thecompensatory response increases with repeated drug administration.

In light ofJohn’s case, drinking alcohol and social situation are the neutral stimuli. With homeostasis, smoking behaviour (US) induces compensatory process thatreduce the nicotine effect in John’s body (UR). When neutral stimuli are pairedrepeatedly with the US, Pavlovian conditioning occurs and neutral stimulibecomes CS which animals learn to anticipate and activate compensatorymechanism (CR). This explains the greater unease for John

when he is out havingbeers with friends as his body undergoes compensatory process in anticipationof the drug taking yet without the effect of nicotine, the opposite effect ofpleasant feeling is not counterbalanced. Without the modulating effect ofanalgesia and other neuropharmacological effects brought by nicotine, opposite feelingsamplified, hence the greater unease and stronger cravings.

Conditionedtolerance as a phenomenon in substance use has been demonstrated in extensiveexperiments. For example, Azorlosa et al (2006) studies on the acquiredconditioned tolerance on lab rats. Rats were either in the paired group givencontextual environmental cue with nicotine, unpaired group with nicotine alone, or control group with saline alone.

The tail flick test was conducted andresults show that both the unpaired and paired group had shorter latencies thanthe control group. This highlights the developed tolerance to analgesic effectof nicotine on both experimental groups. Furthermore, with the present ofcontextual cues, the paired group showed shorter latency in the tail flick testthan the unpaired group, demonstrating that conditioned tolerance is developed, which further diminishes the analgesic effect of nicotine through strongerhomeostatic reaction. Additionally, if drug tolerance is in part attributableto conditioning, tolerance should be subject to extinction.

Azorlosa et al(2006) exhibits the extinction of such conditioned withdrawal. By presentingthe contextual cue without nicotine, rats in paired group showed similarlatency length as unpaired group. This suggests that drug

tolerance wascompletely attenuated when animal was given nicotine in new environment and thecompensatory mechanism is not elicited when cues were absent from newenvironment. The theory of using Pavlovian conditioning to explain thephenomenon of conditioned tolerance is thus justified.