Reviewer's report

Title: Inflammatory and cytotoxic effects of acrolein, nicotine, acetylaldehyde and cigarette smoke extract on human nasal epithelial cells

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Reviewer: T-C Lee

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In this manuscript, the authors tried to reveal whether acrolein, nicotine and acetylaldehyde, chemicals presented in volatile cigarette smoke, play as immunomodulatory agents in cultured primary nasal epithelial cells (PNECs). They simply treated PNECs obtained from healthy subjects with these agents before stimulating by Pseudomonas aeruginosa lipopolysaccharide (PA LPS) and then determined the levels of IL-8, NF-κB, and caspase-3 by different techniques. Their results showed that acrolein is pro-inflammatory whereas nicotine immunosuppressive in PNEC cultures. Acetylaldehyde was no immunomodulatory activity. However, this study using a simple cell system and toxic doses makes difficult to draw conclusion regarding to inflammatory activity. The major comments as following:

1. It is unclear why the authors used these agents at 30 or 50 µM. Are these concentrations relevant to CS? Apparently, the doses used are very toxic epithelial cells. It may not suitable for studying their immunomodulatory activity. The authors should determine the IC50 of these agents against PNECs.

2. NFκB activity should be determined using reporter assay system.

3. The interaction between PNECs and immune cells should be studied.

Minor Essential Revisions

4. Several figure numbers on figure pages are incorrect.

5. The statistical comparison shown in Figure 1 is weird.

Level of interest: An article of limited interest

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests