UNIVERSITI TEKNOLOGI MARA

EVALUATION OF THE EFFECTIVENESS AND SAFETY SIGNALS OF FIRST LINE REGIMENS IN ANTIRETROVIRAL THERAPY (ART)

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PhD

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

The human immunodeficiency virus (HIV) inflicts one of the most severely debilitating illnesses known as Acquired Immune-Deficiency Syndrome (AIDS). The current practice of management of AIDS involves antiretroviral therapy (ART). The use of ART must be judiciously evaluated to prevent treatment failure. This research focused on the evaluation of treatment effectiveness and safety of ART regimens tenofovir/emtricitabine/efavirenz; tenofovir/emtricitabine/nevirapine; zidovudine/ lamivudine/efavirenz and zidovudine/lamivudine/nevirapine. Effectiveness was measured through immunological and virological responses, while disproportionality analysis consisting of proportional reporting ratio (PRR) and reporting odd ratio (ROR) was used to determine potential safety signals from reported adverse events. A retrospective non-interventional study was conducted. The result showed no significant difference in all recommended first line ART regimens in immunological and virological response (P=0.99 and P=0.06) respectively. Ineffectiveness or poor treatment outcome was highly associated with non-adherence, low baseline CD4, co-infected tuberculosis, younger age, unhealthy diet and alcohol intake, use of supplements and improper storage of the medicine (P<0.001). Moreover, safety signals related to nausea, vomiting, anaemia, skin discolouration, renal impairment, dry skin, lipid abnormalities, hepatotoxicity, central nervous system effects and rashes were detected. The safety signals that were detected could potentially unveil hitherto unknown aspects of adverse reactions especially the least reported adverse reaction. As a conclusion, firstly since there is no statistically significant difference in treatment effectiveness of the four ART regimens, the selection under health care environment with limited resource may be based on other non-therapeutic considerations. Secondly, understanding safety signals related to adverse drug reactions early and explicitly could serve as an important guide to the healthcare team in providing better services to protect HIV/AIDS patients. As recommendations, on novel potential safety signals detected in this study, confirmation through reinvestigation of data from randomized trials or experimental study together with specific and case control or cohort analysis is proposed. Also, since concomitant intake of supplements could potentiate the risk of poor treatment outcome, a quantitative prospective study is suggested to find out if any specific types of supplement and diet could affect the treatment outcome.

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