

Synthesis of guanylhydrazones derived from arylmethyl ketones as platelet inhibitor agents.

S. Amidi^{1,2,*}, M. Esfahanizadeh¹, S.A. Tabatabai¹, K. Tabib¹, Z. Soleymani¹, F. Kobarfard^{1,3}

¹Department of Medicinal Chemistry, School of Pharmacy, Shahid Beheshti University of Medical Sciences, Tehran, Iran

²Students' Research Committee, Shahid Beheshti University of Medical Sciences, Tehran, Iran

³Phytochemistry Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aims: Cardiovascular diseases such as thrombosis are one of the major reasons of mortality and morbidity in the world. Platelets have a central role in thrombotic events. However several antiplatelet drugs used in clinic such as aspirin and clopidogrel, exhibit some serious side effects. Finding new drugs with less side effects and better efficacy is one of the interests of medicinal chemist in this field.

Methods: Different arylmethyl ketones and aminoguanidine bicarbonate were reacted under reflux condition in presence of n-butanol and HCl. After removal of n-butanol the mixture was made alkaline by 5%NaOH. The precipitate thus formed was filtered and recrystallized. The antiplatelet activity of the synthesized compounds was evaluated against adenosine diphosphate (ADP) and arachidonic acid (AA) as platelet aggregation inducers according to Born method.

Results: The synthesized guanylhydrazones were characterized by IR, HNMR and ESI-MS. Guanylhydrazones derived from 4'-methylacetophenone and 4'-chloroacetophenone were the most active compounds against ADP-induced aggregation and guanylhydrazone derived from 4'-methoxyacetophenone exhibited more potent inhibitory effect against AA-induced platelet aggregation.

Conclusions: A new series of guanylhydrazone derived from arylmethylketones have been prepared and their activities against AA and ADP induced platelet aggregation have been evaluated. A few compounds showed satisfactory activity.

Keywords: Guanylhydrazone; Arylmethyl ketone; Antiplatelet