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### Assessment, Management and Quality of Care of Patients Presenting with Non-Traumatic Acute Chest Pain in the Emergency Room who had Acute Coronary Syndrome

*Évaluation, Gestion et Qualité des Soins des Patients Présentant une Douleur Thoracique Aiguë Non Traumatique aux Urgences avec un Syndrome Coronarien Aigu*

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#### ABSTRACT

**BACKGROUND:** Non-traumatic Acute Chest pain (NTACP) is a common presentation in the emergency services of many hospitals and a key presenting symptom of acute coronary syndrome (ACS). However, there is a dearth of data on the system of care of ACS patients in our facilities.

**OBJECTIVE:** Our objective was to evaluate the process of care of patients presenting with NTACP at a Tertiary Hospital emergency department (ED) in sub-Saharan Africa, using quality indicators of a universal chain of survival to identify any care gaps in the diagnosis and management of those with life-threatening ACS.

**METHODS:** This was a retrospective cross-sectional study of adult patients  $\geq 18$  years of age, seen between July 2020 and June 2023 at the ED of the University College Hospital (UCH), Ibadan, Nigeria. We used this information to determine the frequency of ACS amongst those presenting with NTACP. From this subset, we assessed the main domains of quality indicators of the universal chain of survival in ACS care. These were, early symptom recognition and call for help; emergency medical service (EMS) evaluation and treatment; ED evaluation and treatment; and reperfusion therapy.

**RESULTS:** We assessed a total of 4,306 patients who presented to the ED during the study period. Of these, 225 patients presented with NTACP. The mean  $\pm$  SD age of these patients was  $45.9 \pm 18.4$  years, with most between the ages of 40–49 years (20.9%) and males (50.7%). More than 80% of the patients presented to ED 12 hours after the onset of chest pain. Only 4.0% presented via an ambulance service which offered no prehospital guideline-directed medical treatment, and 70.7% were non-referred patients. Only 37.3%, 57.8%, 12.4%, and 8.9% had ECG, chest x-ray, echocardiography, and cardiac enzyme evaluation, respectively, in the acute phase of care. There were 29 (12.9%) patients who had a diagnosis of ACS. Two (6.9%) had medical revascularization with thrombolytic agents, while 8 (27.6%) and 19 (65.5%) were referred for primary and secondary PCI respectively.

**CONCLUSION:** We found a high burden of late presentation and significant barriers to recommended guideline management of ACS patients, presenting with clinical features of NTACP in our hospital's ED.

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**KEYWORDS:** Quality of care, Nontraumatic chest pain, Acute coronary syndrome, Troponins, Reperfusion, Percutaneous coronary intervention, Emergency department/room, Rule in and rule out protocols, Health insurance.

#### RÉSUMÉ

**CONTEXTE:** La douleur thoracique aiguë non traumatique (NTACP) est une présentation courante dans les services d'urgence de nombreux hôpitaux et un symptôme clé du syndrome coronarien aigu (SCA). Cependant, il y a peu de données sur le système de soins des patients atteints de SCA dans nos établissements.

**OBJECTIF:** Notre objectif était d'évaluer le processus de prise en charge des patients présentant une NTACP dans un service d'urgence d'un hôpital tertiaire en Afrique subsaharienne, en utilisant des indicateurs de qualité de la chaîne universelle de survie pour identifier les lacunes dans le diagnostic et la gestion de ceux présentant un SCA potentiellement mortel.

**MÉTHODES:** Il s'agit d'une étude rétrospective transversale sur des patients adultes âgés de  $\geq 18$  ans, vus entre juillet 2020 et juin 2023 aux urgences de l'Hôpital Universitaire de l'Université d'Ibadan (UCH), Nigeria. Nous avons utilisé ces informations pour déterminer la fréquence du SCA parmi ceux présentant une NTACP. À partir de ce sous-ensemble, nous avons évalué les principaux domaines des indicateurs de qualité de la chaîne universelle de survie dans les soins du SCA. Ces domaines comprenaient la reconnaissance précoce des symptômes et l'appel à l'aide, l'évaluation et le traitement par les services médicaux d'urgence (SMU), l'évaluation et le traitement aux urgences, et la thérapie de reperfusion.

**RÉSULTATS:** Nous avons évalué un total de 4 306 patients qui se sont présentés aux urgences au cours de la période d'étude. Parmi eux, 225 patients présentaient une NTACP. L'âge moyen  $\pm$  écart-type de ces patients était de  $45,9 \pm 18,4$  ans, la plupart ayant entre 40 et 49 ans (20,9%) et étant des hommes (50,7%). Plus de 80% des patients se sont présentés aux urgences 12 heures après le début de la douleur thoracique. Seulement 4,0% sont arrivés via un service d'ambulance qui n'a pas offert de traitement médical préhospitalier dirigé par des lignes directrices, et 70,7% étaient des patients non référés. Seuls 37,3%, 57,8%, 12,4% et 8,9% ont eu un ECG, une radiographie thoracique, une échocardiographie et une évaluation des enzymes cardiaques, respectivement, dans la phase aiguë des soins. Vingt-neuf patients (12,9%) ont été diagnostiqués avec un SCA. Deux (6,9%) ont subi une revascularisation médicale avec des agents thrombolytiques, tandis que 8 (27,6%) et 19 (65,5%) ont été référés pour une ICP primaire et secondaire, respectivement.

**CONCLUSION:** Nous avons constaté une forte prévalence de présentation tardive et des obstacles significatifs à la gestion recommandée par les lignes directrices des patients atteints de SCA, se présentant avec des caractéristiques cliniques de NTACP dans les urgences de notre hôpital.

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**MOTS CLÉS:** Qualité des soins, Douleur thoracique non traumatique, Syndrome coronarien aigu, Troponines, Reperfusion, Intervention coronarienne percutanée, Département/salle d'urgence, Protocoles de diagnostic, Assurance santé.

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**ABBREVIATION:** ACS: Acute coronary syndrome; CABG: Coronary Artery Bypass Graft; ECG: Electrocardiogram; ED: Emergency department; EMS: emergency medical service; IBM: International Business Machines; NTACP: Non-traumatic acute chest pain; PCI: percutaneous coronary intervention; SD: Standard deviation; SPSS: Statistical Product and Service Solutions; SSA: Sub-Saharan Africa; STEMI: ST segment elevation myocardial infarction