

# Relationship Between Hemodynamic Parameters and Risk of Pressure Ulcers Development in Patients after Open Heart Surgery

Jalil Azimian <sup>1</sup>, Hossein Rafiei <sup>2</sup>, Mojtaba Senmar <sup>3</sup>

*1. Assistant Professor, Faculty of Nursing and Midwifery, Qazvin University of Medical Sciences, Qazvin, Iran*

*2. Social Health Determinants Research Center, Qazvin University of Medical Sciences, Qazvin, Iran*

*3. Student Research Center, School of Nursing and Midwifery, Qazvin University of Medical Sciences, Qazvin, Iran*

Corresponding Author: Mojtaba Senmar, E-mail: senmarmojtaba@gmail.com

## ABSTRACT

**Background:** Pressure ulcer development is a negative point for health care systems in the world. First step in prevention of pressure ulcer is identifying risk factors of pressure ulcer. One group of patients that are at high risk of pressure ulcer development is who are under open heart cardiac surgery. However study about this group of patients is very limited. In present study we, examined relationship between the risk of pressure ulcer development in this group of patients and hemodynamic parameters.

**Material and Methods:** This descriptive analytic study performed in open heart cardiac surgery intensive care unit of Bou-Ali hospital in Qazvin, Iran. Eighty two patients who were under cardiac surgery were selected by using available sampling method. The risk of pressure ulcer development measured in three time; before surgery, after surgery (in time that patients were alert) and in time of patients discharge with using NPUAP and braden scale. Also patients' demographic characteristics and hemodynamic status recorded daily by researcher.

**Results:** Of the 82 patients, 36 (43.9%) were women and 46 (51.6%) were men. The mean age of participants were  $60.93 \pm 10.52$  year and the mean of cardiac Intensive Care Unit (ICU) stay were  $2.87 \pm 0.96$  days. Totally all pressure ulcers was stage I and II. Factors such as: mean of diastolic blood pressure during the first day ( $P = 0.04$ ), mean of central venous blood pressure during the second day ( $P = 0.01$ ) and mean of heart rate during the second day ( $P = 0.04$ ) affect risk of

pressure ulcer development significantly.

**Conclusion:** Results of present study revealed that patients who are undergoing cardiac surgery are at high risk of pressure ulcers development and factors such as diastolic blood pressure, mean central venous pressure, mean heart rate increased this risk.

**Keywords:** Pressure Ulcer Development, Hemodynamic Situation, Cardiac Surgery