The measurement of blood pressure by the linear method compared to the deflation methods differently modifies the pulse oximeter alarm frequency

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論 文 名　：　The measurement of blood pressure by the linear method compared to the deflation methods differently modifies the pulse oximeter alarm frequency
（非観血式血圧測定方式（直線加圧方式と減圧方式）の違いによるパルスオキシメーターアラーム発生頻度の比較）

区　　分　：甲

論 文 内 容 の 要 旨

Background Noninvasive blood-pressure measurement device and pulse oximeter are important for patient monitoring. When these are placed on the same side, cuff inflation sometimes causes measurement failure by pulse oximeter.
Objective The present study aimed to compare the pulse oximeter alarm frequency and pulse-wave disappearance duration between noninvasive bloodpressure measurement using the deflation method and that using the linear inflation method.
Methods The study included 10 healthy subjects. The cuff for automatic sphygmomanometer was wrapped on one side of the upper arm and for pulse oximeter was attached to the thumb of the same side of upper limbs.
Results The alarm frequency was 0 and 26% using the linear inflation and the deflation methods, respectively. Additionally, the pulse-wave disappearance duration was significantly longer using the deflation method than that using the linear inflation method (10.0 ± 1.5 vs 1.7 ± 0.8 s). With the linear inflation method, this duration was or less 3 s. In the deflation method, an excess pressure of 40 mmHg was used, which caused the alarm to turn on.
Additionally, the heart rate was found to influence the alarm occurrence during measurement using the deflation method.
Conclusion Heart rate may influence alarm occurrence during blood-pressure measurement using the step deflation method. Using the linear inflation method, the risks of alarm occurrence and measurement failure are low, even when the pulse oximeter and blood-pressure measurement cuffs are installed on the same side, suggesting that this method is suitable for clinical use.