Prediction and Prevention System for the Infection by the Cough with the SARS-COV-2 virus

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Abstract— **Sars-Cov-2 infection is becoming one of the most important infections in the world. The droplet infection by the cough is an most important origin for the Covid-19 infection among all causes. If we can predict the onset for the cough and prevent the infection, it will be good news for the all of the world. In this paper, newly invented prediction and prevention system for the Covid-19 is described. Before the cough generation, human body must take aspiration. And then , the Cough will be happened in the acute exhalation with dloplet of the viruses. If we can predict the cough, we can prevent. Diagnosis system for the swallowing motion and circulation had been invented in Tohoku University, and the prediciton system will be embodied. By the 3-D imaging of the human body surface, prediction system for the cough generation is invented. If we can predict the cough we can prevent the infection by the Sars Cov-2 by the active shelter or the active air shatter. In this paper, new Prediction and Prevention system for the Infection by the Cough with the SARS-COV-2 was reported.**

I. INTRODUCTION

The droplet infection by the cough is a most important origin for the Covid-19 infection among all causes. If we can predict the onset for the cough and prevent the infection, it will be good news for the all of the world. In this paper, newly invented prediction and prevention system for the Covid-19 is described. Before the cough generation, human body must take aspiration.

If we can predict the cough, we can prevent the infection by the Sars Cov-2 by the active shelter or active air shower. In this paper, newly invented system was reported.
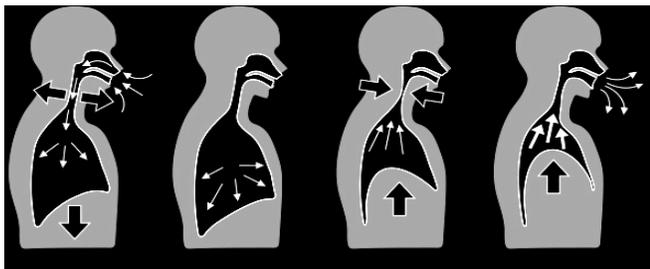

Fig.1   Pressure and the motions of the human with cough.

II. MATERIAL AND METHODS

By the use of the newly invented diagnosis and prevention system, evaluation of the human body surfaces was tried in this study after the ethical committee allowance (20191707). Evaluation of the human body surfaces was started with 3D camera and evaluationg personal computer system with healthy normal volunteers aged from 23 to 49.
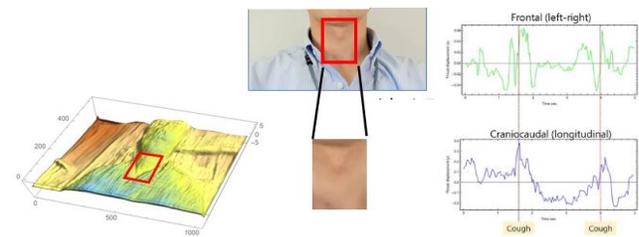

Fig.2 3-D reconstruction of a surface of the neck

III. RESULTS AND DISCUSSION

Quantitative evaluation of the human surfaces had been embodied after the ethical committee allowance. For example, figure showed the reconstruction of the neck in a human body and time series data.
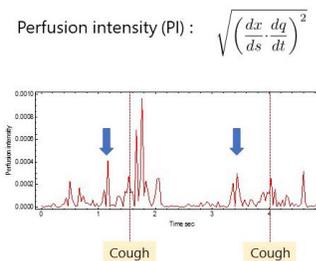
Perfusion intensity (PI) : $\sqrt{\left(\frac{dx}{ds}\cdot\frac{dq}{dt}\right)^2}$

Fig.3   Prediction wave using skin surface motion and peripheral circulation

In this study prediction wave was observed in the horizontal slice of the 3-D image of the neck in the coughing human body with the information of the peripheral circulation..

If the prediction of the cough will be embodied, the prevention system will be realized even in the Elderly care facility. Air shatter or the responding actuated acrylic partition may be available when we consider the not only Sars-cov-2, but also another outbreaking viruses.

It will become good news for the world where we cannot exterminate the Sars-Cov-2.