Sniff test: does what we measure at the nose reflect what happens in the chest wall?

Antonella LoMauro, Cristina Martorana, Andrea Aliverti, Mario Nosotti, Alessandro Palleschi, Emilia Privitera

Abstract

Nasal pressure measured during sniff (SNIP) is a technically simple voluntary test. Since the contraction of the diaphragm expands the abdomen, the volume variation during sniff manoeuvre should therefore be predominantly abdominal in order to be considered a specific index of diaphragm strength.

We aimed to verify if and how SNIP varied according to thoraco-abdominal volume variations.

We measured abdominal volume variations, using opto-electronic plethysmography, during quiet breathing (AB\textsubscript{QB}) and sniff manoeuvres (AB\textsubscript{SN}) in supine position on 30 patients (age: 42; FVC:47.5%; FEV\textsubscript{1}:30%) on the waiting list for lung transplant. SNIP was measured simultaneously with AB\textsubscript{SN}. 68 sniff were analysed and classified into 4 groups according to AB\textsubscript{SN}: 16 with thoracic paradox, 24 predominantly abdominal, 16 predominantly thoracic and 12 with abdominal paradox.

By definition AB\textsubscript{SN} was different (p<0.001) among the 4 groups, whereas AB\textsubscript{OB} (~75%; p=0.373) and SNIP (~53 cmH\textsubscript{2}O, p= 0.792) were similar (figure 1).

SNIP did not change with the different thoraco-abdominal strategies. The diaphragm was not weak and leaded inspiration, therefore AB\textsubscript{SN} varied because the patients misperformed the manoeuvre.

In order to not misunderstand the clinical significance of a sniff test, care should be paid also in thoraco-abdominal movement because SNIP, per se, cannot differentiate between thoracic or diaphragmatic manoeuvre with the risk to lose its specificity.
Footnotes

Cite this article as: European Respiratory Journal 2019; 54: Suppl. 63, PA2194.

This is an ERS International Congress abstract. No full-text version is available. Further material to accompany this abstract may be available at www.ers-education.org (ERS member access only).

Copyright ©the authors 2019

We recommend

Respiratory muscle activation and action during cough
Antonella LoMauro et al., European Respiratory Journal, 2013

Influence of different factors in maximal nasal inspiratory pressure (SNIP) values in healthy volunteers

Respiratory thoraco-abdominal mechanics in man
Joseph Milic-Emili et al., Journal of Applied Physiology, 1964

P233 Structured light plethysmography correlates well with inspiratory muscle strength in pompe disease
SC Madathil et al., Thorax, 2018
Ana Balañá et al., European Respiratory Journal, 2013

Measuring inspiratory muscle strength in neuromuscular disease: one test or two?
N Terzi et al., European Respiratory Journal, 2007

Sniff nasal inspiratory pressure in children with muscular, chest wall or lung disease.
B Fauroux et al., European Respiratory Journal, 2008

Can sniff nasal pressure (SNIP) measurement be used interchangably or complementary to maximum inspiratory pressure (MIP) to ankylosing spondylitis (AS) patients?
Charalampos Mandros et al., European Respiratory Journal, 2013

C0091 Dynamic transabdominal ultrasound: assessing the reduction of the pelvic floor displacement during the cough
Beatriz Navarro Brazález et al., British Journal of Sports Medicine, 2018

Diaphragmatic dysfunction and respiratory illness (Review)
PulmCCM, PulmCCM

Q&A: Biden Cancer Initiative President Greg Simon Discusses Data Sharing in Precision Oncology
Precision Oncology News, 2019

I consent to the use of Google Analytics and related cookies across the TrendMD network (widget, website, blog). Learn more

Powered by TrendMD

Vol 54 Issue suppl 63 Table of Contents

Table of Contents
Index by author

Email
Alerts
Citation Tools

Request Permissions
Share

Jump To

Article
Figures & Data
Info & Metrics
No related articles found.