



EBOV



International Congress of Osteopathic Medicine

“Towards an integrated Medicine”

6/9 APRIL 2011

FLORENCE - ITALY
Palazzo dei Congressi

*“To find health should be
the object of the doctor.
Anyone can find disease.”*

Andrew Taylor Still

Prevalence of somatic dysfunctions in adult patients with cystic fibrosis – A pilot study

Lucile Soubeiran DO MROF, Dominique Hubert MD, Raphaël Serreau MD PhD,
Nadine Desmazes-Dufeu MD, Rafael Zegarra-Parodi DO MROF

INTRODUCTION

○ Context

- Cystic Fibrosis (CF)
- Treatments – Traditional medicine
- Treatments – Alternative medicine

○ Purpose

- Symptoms associated with a higher frequency of somatic dysfunctions (Snider et al, 2008)
- To our knowledge, no osteopathic studies have been published on CF
- A simple descriptive study

STUDY DESIGN

- Submitted to the local ethics committee
- Pilot observational study between two populations
- From October 1, 2007 to January 31, 2008
- Localisation
 - Study group: Adult CF care Center at Cochin Hospital in Paris
 - Control group: European Center for Higher Education in osteopathy (CEESO) in Paris
- Population study

	Study group	Control group
Number	14	14
Gender (Male – Female)	8 / 6	8 / 6
Mean age (min – max) (years)	32.0 (18 – 53)	31.6 (19 – 54)

METHODS

- A single practitioner for the study (LS)
- Full osteopathic standard examination
- Data collection on a modified file, the « Outpatient Osteopathic SOAP Note Form »
 - 14 anatomical regions
 - Addition of 16 specific anatomical regions according to practitioner experts opinions

METHODS

- Diagnosis criteria of somatic dysfunction (SD)
 - Restriction of passive mobility
 - Pain: spontaneous or induced by palpation
 - Anatomical landmarks asymmetry during movement
 - Soft tissue changes

Osteopathic tests	Criteria of presence	Criteria of absence
Cranial	3 - 5 clinical manifestations found	0 - 2 clinical manifestations found
Neuro-musculo-skeletal	3 - 5 clinical manifestations found	0 - 2 clinical manifestations found
Visceral	3 - 5 clinical manifestations found	0 - 2 clinical manifestations found

METHODS – STATISTICAL ANALYSIS

- Fisher's exact test
- α risk set at 5%
- Qualitative data were compared
- Presence or absence of clinical signs of SD among adult patients with CF and patients without chronic pain

RESULTS

- Prevalence of somatic dysfunctions in the two groups – Anatomical regions of « Outpatient Osteopathic SOAP Note Form »

Anatomic Regions		Study group (n=14)	Control group (n=14)	Fisher's Test
Head (CRI)		12	4	p<0.01
Neck		20	25	Ns
Thoracic	T1-T4	25	24	Ns
	T5-T9	38	28	Ns
	T10-T12	22	18	Ns
Lumbar		28	29	Ns
Ribs	R1-R4	14	5	p=0.052
	R5-R9	9	4	Ns
	R10-R12	1	0	Ns
Sternum		13	2	p<0.0001
Sacrum/pelvis		13	14	Ns
Pelvis/innominate		6	7	Ns
Upper extremity	G	3	2	Ns
	D	3	3	Ns
Lower extremity	G	3	8	Ns
	D	14	8	Ns

RESULTS

- Prevalence of somatic dysfunctions in the two groups – Anatomical regions described by practitioner experts

Anatomic regions	Study group (n=14) Number (Prevalence %)	Control group (n=14) Number (Prevalence %)	Fisher's test
Chest Superior Orifice (CSO)	13 (93)	5(36)	p<0.01
Right sub-clavicular muscle	9 (64)	2(14)	p=0.02
Left sub-clavicular muscle	14 (100)	2 (14)	p<0.0001
Right pleural dome (ligament)	7(50)	0 (0)	p<0.01
Left pleural dome (ligament)	13 (93)	0 (0)	p<0.0001
Mediastinum	11 (78)	4 (28)	p=0.02
Motility of the lungs	13 (93)	0 (0)	p<0.0001
Diaphragm (right dome)	11 (78)	4 (28)	p=0.02
Pelvic floor (Muscles)	12 (86)	5 (36)	p=0.02

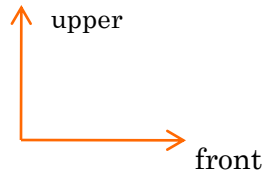
DISCUSSION

- Use of the biomechanical and neurophysiological model of somatic dysfunction as described in the WHO Benchmarks (2010) for description and interpretation of the clinical signs
- Possible associations between pathophysiology of CF and palpated signs attributed to SD
 - Somato-somatic
 - Viscero-somatic
 - Somato-visceral
 - Viscero-visceral



SOMATO-SOMATIC REFLEXES

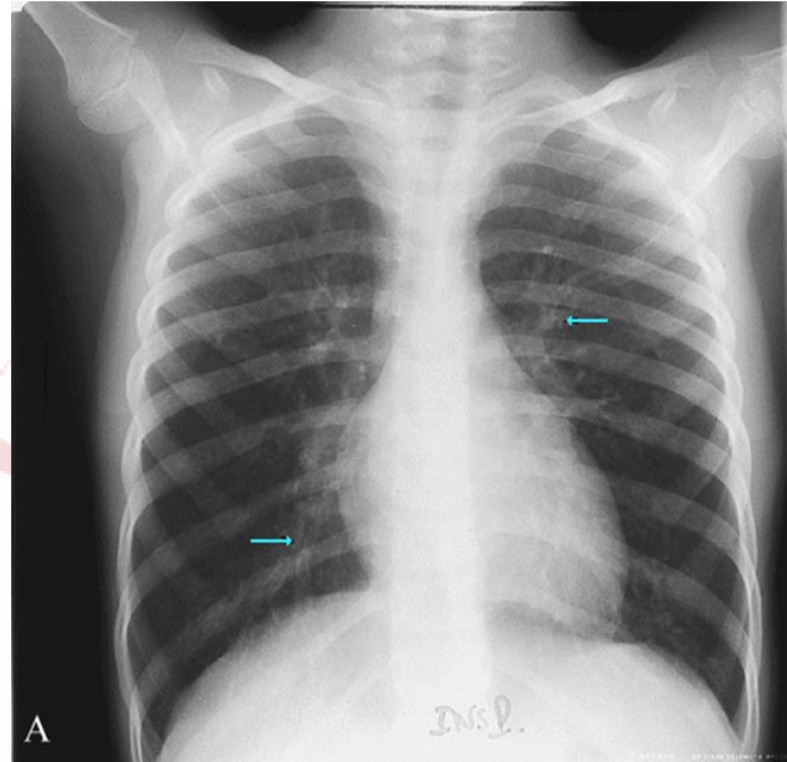
- Chondro-costal SDs ($p < 0.0001$)
 - Chest distension with a kyphosis and a bulging sternum (Davies et al, 2007)
- Ribs SDs ($p = 0.052$)
 - Adaptation to chondro-costal dysfunctions?
 - Adaptation to postural changes?



SOMATO-SOMATIC REFLEXES

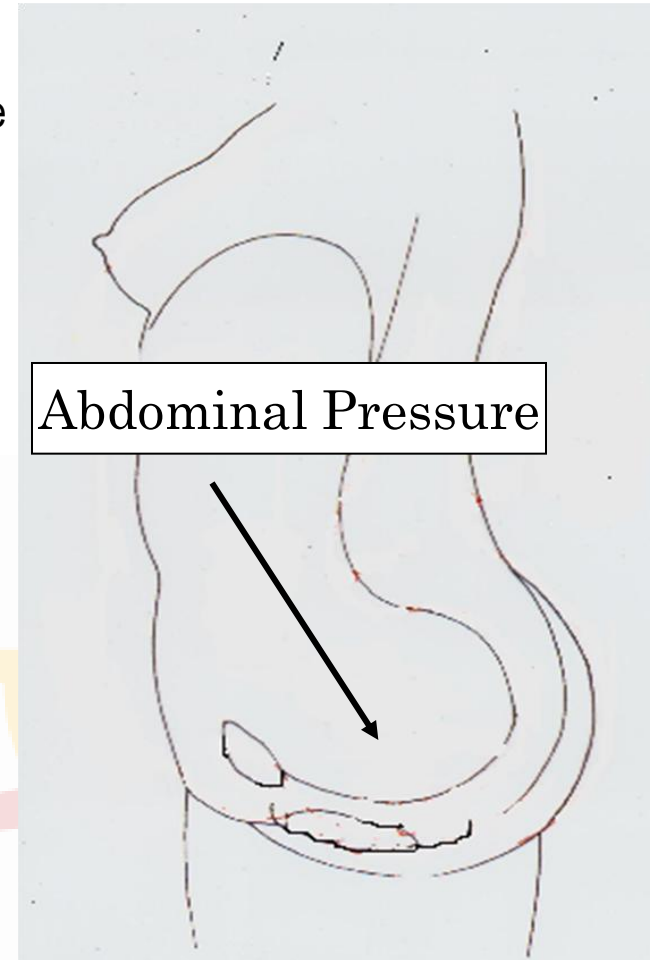
- Diaphragm hypertonia (p=0.02)
 - Lung distension with a distended chest at its base (Davies et al, 2007)
 - Diaphragmatic dome flattening and shortening of its muscle fibers, resulting in a decrease in strength of contraction (Perez et al, 2003)

Frontal view



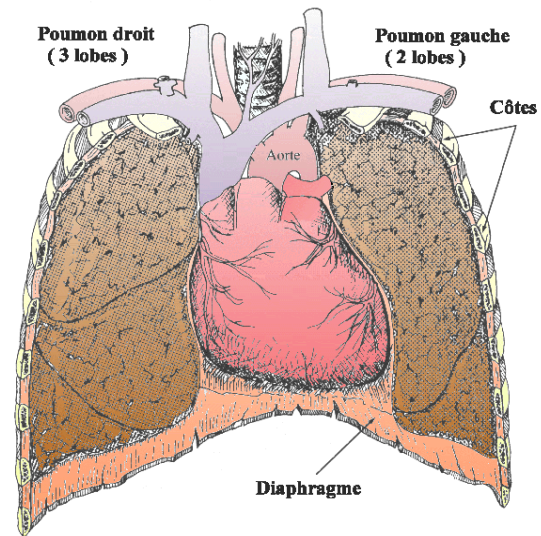
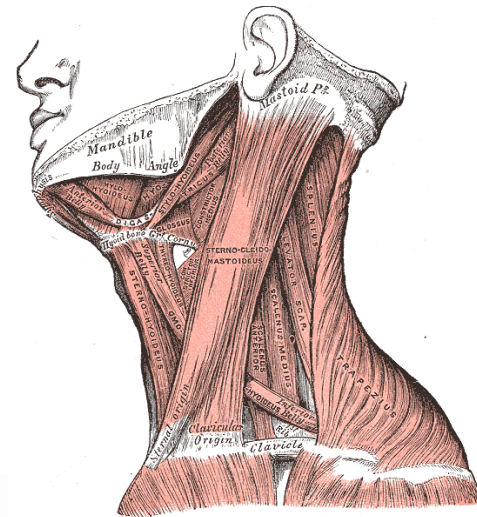
SOMATO-SOMATIC REFLEXES

- Perineum muscle hypotonia ($p=0.02$)
 - Pulmonary distension with a diaphragmatic dome flattening (Perez et al, 2003)
 - Increased pressure on the abdominal organs, including pelvic organs ?
- Decrease in the rate of cranial rhythmic impulse (CRI) and spheno-basilar SDs ($p=0.006$)
 - Patients suffering from Parkinson's disease (Rivera-Martinez et al, 2002)
 - Related to postural changes of patients?



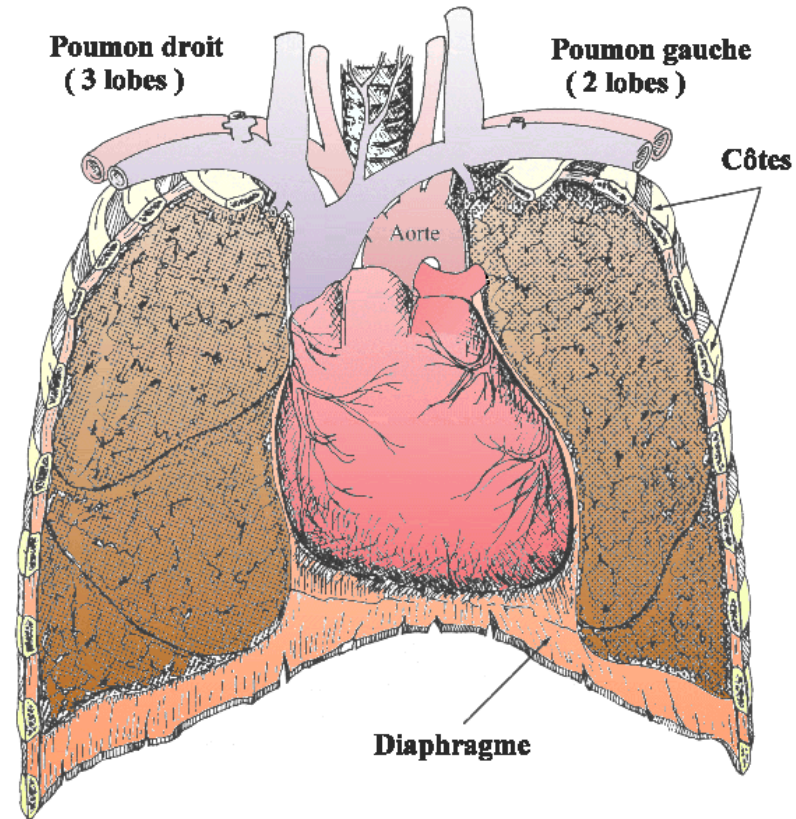
VISCERO-SOMATIC REFLEXES

- Overstressing leads to sub-clavicular muscle hypertonia ($p=0.02$ on the right and $p<0.0001$ on the left)
 - Evolution of severity of vertebral SDs due to viscera-somatic reflexes in diabetic population (Licciardone et al, 2007)
- Loss of lung expansion ($p<0.0001$) and decrease in pleural elasticity of the dome tissue ($p=0.006$ on the right and $p<0.0001$ on left)
 - Pathology of an organ could be associated with disturbances of its motility (Barral, 2004)



VISCERO-VISCERAL REFLEXES

- Tissue resistance to compression of the anterior-posterior mediastinum ($p=0.02$)
 - Tissue adaptation of the mediastinum in close anatomical relationship with pulmonary cylinders?
 - Lung distension with a bulging sternum (Davies et al, 2007)
- Barral, 2004



STUDY LIMITS

- Practitioner was not blinded
- Intra-operator reliability was not assessed but recommendations for filling « Outpatient Osteopathic SOAP Note Form » were followed
- Palpation of the tissue changes
 - Some were attributable to somatic dysfunction, considered « reversible » after osteopathic manipulative treatment
 - And some were physiopathological impairments of CF, considered « irreversible »
 - A challenge to describe the place of OMT for patients suffering from CF

CONCLUSION

- To our knowledge, this study is the first one to evaluate the prevalence of somatic dysfunctions in adult patients with cystic fibrosis
- We observed a higher frequency of signs associated with somatic dysfunctions in these patients
- Associated with changes in their posture and the impact of disease on the respiratory system, based on the biomechanical and the neurophysiological model of somatic dysfunction

PERSPECTIVE

- « Mucostéo »
- Clinical Research on « Contribution of osteopathic treatment on pain of adult patients with cystic fibrosis - A pilot Study »



ACKNOWLEDGEMENTS

- Professor Daniel Dusser, chief of pneumology department at the Cochin Hospital
- Doctor Dominique Hubert, pneumologist on the CF care Center at the Cochin Hospital
- Medical and paramedical staff of the CF Center
- Patients of the study, CF care Center and CEESO Paris
- Clinical research Paris Descartes Center for obtaining regulatory review and methodological support
- Jean Lefeuvre, my Osteopath supervisor of the dissertation study
- Rafael Zegarra-Parodi, CEESO Research Department

THANK YOU FOR YOUR ATTENTION

