Discussion

SSR and of BP overshoot). They all showed normal autonomic responses (presence of palmar and plantar SSR and of BP overshoot). Paraplegics T7-T10 (3 AIS A)

SSR and BP overshoot were obtained in a majority of patients. SSR and a significant rise in BP with pressor stimuli below the lesion. Palmar and plantar SSR and BP overshoot at the end of the Valsalva, and a significant rise in BP with pressor stimuli below the lesion. All 12 SCI patients with complete AIS A lesions presented with abolished plantar SSR, absent blood pressure (BP) overshoot at the end of the Valsalva, and a significant rise in BP with pressor stimuli below the lesion. Paraplegics ≥ T6 (12 AIS A & 3 AIS D).

All 12 SCI patients with complete AIS A lesions presented with abolished plantar SSR and a significant rise in BP with pressor stimuli below the lesion. Palmar SSR and BP overshoot were obtained in a majority of patients. Patients with incomplete AIS D lesions showed normal autonomic responses (presence of palmar and plantar SSR and BP overshoot). Paraplegics T7-T30 (3 AIS A).

They all showed normal autonomic responses (presence of palmar and plantar SSR and of BP overshoot).

Discussion.– All patients with a complete motor lesion (AIS A & AIS B) above T6 showed a total loss of supraspinal control on the thoraco-lumbar sympathetic cord. This isolated spinal cord reacted reflexively in all but one patient. Patients with incomplete motor lesions (AIS D) and patients with lesions below T6 showed normal autonomic responses.

To assess autonomic dysfunction, a battery of tests is needed and should combine pressor stimuli above and below the lesion, including sympathetic skin responses (SSR), Valsalva Manoeuvre, abdominal electrical stimulation, and cold foot.

Results.– Tetrplegics (14 AIS A & 7 AIS B). All 21 SCI patients showed absent palmar and plantar SSR, absent blood pressure (BP) overshoot at the end of the Valsalva, and a significant rise in BP with pressor stimuli below the lesion.

Paraplegics ≥ T6 (12 AIS A & 3 AIS D).

All 12 SCI patients with complete AIS A lesions presented with abolished plantar SSR and a significant rise in BP with pressor stimuli below the lesion. Palmar SSR and BP overshoot were obtained in a majority of patients. Patients with incomplete AIS D lesions showed normal autonomic responses (presence of palmar and plantar SSR and of BP overshoot).

Paraplegics T7-T30 (3 AIS A).

They all showed normal autonomic responses (presence of palmar and plantar SSR and of BP overshoot).

Discussion.– All patients with a complete motor lesion (AIS A & AIS B) above T6 showed a total loss of supraspinal control on the thoraco-lumbar sympathetic cord. This isolated spinal cord reacted reflexively in all but one patient. Patients with incomplete motor lesions (AIS D) and patients with lesions below T6 showed normal autonomic responses.

To assess autonomic dysfunction, a battery of tests is needed and should combine pressor stimuli above and below the lesion, and assess both cholinergic and sympathetic responses. Twenty-eight had a motor and sensory complete lesion (American Incapacity Scale A), 7 a complete motor but incomplete sensory lesion (AIS B), 3 a motor incomplete lesion (AIS D).

All underwent a battery of autonomic tests with pressor stimuli above and below the lesion, and assess both cholinergic and sympathetic responses. All underwent automatic testing including sympathetic skin responses (SSR), Valsalva Manoeuvre, and reflex dermographism (skin axon reflex vasodilatation). Presence of palmar SSR and of blood pressure (BP) overshoot at the release of Valsalva is indicative of the integrity of the upper thoracic (T1–T4) sympathetic cord segment, whereas reflex dermographism assesses the T3–T12 sympathetic thoracic cord. Results.– Fifteen out of 16 patients presented a good relation between absence of palmar SSR and absence of BP overshoot, indicating a sympathetic level of lesion above T1; 12 out of 14 patients showed a good relation between presence of palmar SSR and presence of BP overshoot, indicating a sympathetic level of lesion below T4.

In 28 patients with complete AIS A lesions, there was a good relation between reflex dermographism and automatic testing, allowing assessment of the sympathetic level of lesion between T3 and T10. In patients with incomplete (AIS B–D) lesions, the relation was poor.

Discussion.– Autonomic testing (SSR and Valsalva) allow assessment of the integrity of the upper thoracic sympathetic cord (T1–T4). Reflex Dermographism comes in addition to further delimit the sympathetic level of lesion.

References


CO35-005–EN

Investigations of the Autonomic Nervous System: practical aspects

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In cases where symptoms are suggestive of autonomic disturbance (unexplained overactive bladder, voiding phase dysfunction . . . ) specific testing for dysautonomia should be performed. Most explore the cardiovascular system: orthostatic hypotension, cold pressor test, hand grip test, stand test, 30/15 ratio, Valsalva ratio, deep breath test. The Schirmer test assesses dry eyes; the Saxon test and sugar cube test assess dry mouth. These tests are not invasive and are easy to perform without specific equipment.


CO35-006–EN

Sympathetic system and syringomyelia

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Keywords: Syringomyelia; Sympathetic system; Horner syndrome; Dyshidrosis; Neurogenic arthropathy

The spinal sympathetic system, from C8 to L2, is one of the first anatomical structures involved in syringomyelic cavity development. Its impact is variable but sometimes in the foreground of symptoms and signs. The objective of this study is a review of physiopathology of numerous vegetative disorders which can be seen in syringomyelia. Moreover the review of the literature, we studied 54 cases of symptomatic post-traumatic syringomyelias followed in our departments. This vegetative disturbance concerns pre-ganglionnic area. We may first encounter cutaneous disorders such as dyshidrosis, with frequent sweating. Horner syndrome may also be seen as the only sign of the disease. Other visceral disturbances are quite difficult to distinguish from spinal cord automatism. Neurogenic arthropathies are also linked to vegetative troubles.

Despite a difficult interpretation, vasomotor troubles, sweating troubles or skin trophicity troubles seldom miss. They have the same value as usual motor or sensitive syringomyelic signs.

CO35-007–EN

Enteric nervous system and Parkinson's disease
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Keywords: Maladie de Parkinson; Enteric nervous system; Colon; Biopsies; Alpha-synucleine

Lewy pathology in Parkinson’s disease (PD) extends well beyond the central nervous system (CNS) and also affects peripheral autonomic neuronal circuits, especially the enteric nervous system (ENS). The ENS is an integrative neuronal network also referred to as “the-brain-in-the-gut” because of its similarities with the CNS. We have recently shown that the ENS can be readily analyzed using routine colonic biopsies. Lewy neurites were retrieved in 3/4 of PD patients and in none of the controls. This led us to propose that the ENS could represent a unique window to assess the neuropathology in living PD patients. In perspective, we believe that the ENS may be exploitable to investigate PD and improve our understanding and management of this and likely other neurodegenerative disorders.

References

CO35-008–EN

Lack of pressure-induced vasodilation in spinal cord injured patients
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Keywords: Spinal cord injury; Pressure ulcer

Pressure ulcer is a frequent and severe complication in spinal cord injured (SCI) patients, with serious consequences and high costs. A transient increase in skin blood flow during local pressure application, defined as pressure-induced vasodilation (PIV), delays the occurrence of ischaemia suggesting its protective feature against low applied pressure. We hypothesised that SCI patients have high risk for pressure ulcer development in part because of their lack of PIV. To test this hypothesis, we evaluated the effects of locally applied pressure on the skin blood flow of the internal ankle bone as measured by laser Doppler in SCI patients as compared to controls (healthy subjects). Whereas the applied pressure induced a progressive decrease of skin blood flow in SCI patients, we observed PIV in healthy subjects. Since PIV does not occur in SCI patients, we suggest that PIV has a spinal or supra-spinal control. We conclude that PIV may play a role in the defence of the skin in response to locally applied pressure. Thereby the lack of PIV can be considered as a factor contributing to the development of pressure ulcers in SCI patients.

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Enquête de la pratique du Sondage Intermittent Propre auprès des médecins généralistes

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Mots clés : Vessies neurologiques ; Sondage Intermittent Propre ; Médecins généralistes

Introduction.– Le sondage intermittent propre (SIP) est actuellement la méthode de choix pour le drainage des urines en cas de rétention urinaire. Il a constitué une véritable révolution dans la prise en charge des troubles vésicosphinctériens des patients blessés médullaires, dont les complications ont été pendant longtemps la première cause de morbidité et de mortalité. La surveillance des patients aux SIP doit être assurée par un médecin familiarisé à la prise en charge des troubles urinaires. Ces patients, pour des raisons géographiques, sont suivis par leur médecin traitant référé qui doit connaître ce mode mictionnel pour assurer un suivi adapté.

Objectif.– Évaluer les connaissances des futurs médecins généralistes sur le SIP.

Sujets et méthodes.– Un questionnaire direct, orienté sur la connaissance du SIP, a été distribué à 140 stagiaires internes en fin de cursus d’internat (des futur médecins généralistes). Le questionnaire est composé de 13 questions qui portent sur la définition du SIP, les modalités de réalisation, les indications d’un examen cytobactériologique des urines et de l’antibiothérapie et les complications de ce mode de drainage.

Résultats.– Un tiers des médecins ont donné une définition exacte du SIP, alors que 15 % l’ont confondu à la sonde à demeure. Des gants stériles étaient nécessaires pour la réalisation du SIP pour 37,8 % des médecins et un antiseptique éthylique était prescrit par 58 % des médecins. L’infection était considérée comme la principale complication du SIP par 47 % des médecins avec 36 % qui demandaient un examen cytobactériologique des urines systématiques chez ces patients et 31 % prescrivaient une antibiothérapie devant une colonisation. La moitié des médecins prescrivaient une antibiothérapie de 10 jours en cas d’infection urinaire basse chez les patients sous SIP et un tiers prescrivaient 15 jours de traitement.

Discussion et conclusion.– Le SIP constitue le gold standard en matière de vessie neurologique dont les indications sont élargies ces dernières décennies. Il doit être mieux connu par les médecins généralistes qui assurent le suivi de ces