PUBLICACIONES CIENTÍFICAS

TERCER TRIMESTRE 2024

JULIO

Current challenges in neurocysticercosis: recent data and where are we heading

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Revista: Current Opinion in Infectious Diseases
DOI: 10.1097/QCO.0000000000001036
Tipo de articulo/ estudio: Estudio de revisión

Resumen:
Purpose of review: Neurocysticercosis (NCC) is still a significant contributor to neurological disease in vast regions of the world, and increasingly diagnosed in nonendemic countries because of travel and immigration from endemic settings. There is a need for clinicians in endemic and nonendemic regions to understand the complexities of its diagnosis and management.
Recent findings: Recent information on the performance and use of available imaging and immunodiagnostic tools as well as antiparasitic and anti-inflammatory therapeutic regimes were assessed.
Summary: Imaging and serology data should be assessed in the context of the specific type of NCC to improve diagnostic precision. In terms of therapeutic approaches, more controlled data is required on the efficacy and safety of combined antiparasitic therapy, and antiseizure and anti-inflammatory regimes should be optimized to minimize perilesional damage and reduce the risk of epilepsy.

Transcranial Doppler ultrasonography to evaluate cerebral hemodynamic changes in neurocysticercosis

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Revista: Arquivos de neuro-psiquiatria
DOI: 10.1055/s-0044-1788584
Tipo de articulo/ estudio: Articulo original/ estudio observacional

Resumen:
Background. Arteritis is a complication of neurocysticercosis (NCC), which is not well known and could trigger strokes. The transcranial Doppler ultrasound (TCD) is a noninvasive method for detecting, staging, and monitoring cerebrovascular diseases. Nonetheless, the utility of TCD to evaluate cerebral hemodynamic changes, suggesting vasculitis associated with NCC remains uncertain. *Objective.* To evaluate cerebral hemodynamic changes using TCD in patients with subarachnoid and parenchymal NCC.
Methods. There were 53 patients with NCC evaluated at a reference hospital for neurological diseases included (29 with subarachnoid and 24 with parenchymal). Participants underwent a clinical interview and serology for cysticercosis and underwent TCD performed within 2 weeks of enrollment. Mean flow velocity, peak systolic velocity, end diastolic velocity, and pulsatility index were recorded.
Results. Among the participants, there were 23 (43.4%) women, with a median age of 37 years (IQR: 29–48). Cerebral hemodynamic changes suggesting vasculitis were detected in 12 patients (22.64%); the most compromised vessel was the middle cerebral artery in 11 (91.67%) patients. There were more females in the group with sonographic signs of vasculitis (10/12, 83.33% vs. 13/41, 31.71%; $p = 0.002$), and this was more frequent in the subarachnoid NCC group (9/29, 31.03% vs. 3/24, 12.5%; $p = 0.187$), although this difference did not reach statistical significance.
Conclusion. Cerebral hemodynamic changes suggestive of vasculitis are frequent in patients with NCC and can be evaluated using TCD.

Parkinson's Disease Gene Screening in Familial Cases from Central and South America

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Revista: Movement Disorders
DOI: https://doi.org/10.1002/mds.29931
Tipo de articulo/ estudio: Articulo original/ estudio observacional

Resumen:
Background. Parkinson's disease (PD) is the second most common neurodegenerative disease following Alzheimer's disease. Nearly 30 causative genes have been identified for PD and related disorders. However, most of these genes were identified in European-derived families, and little is known about their role in Latin American populations.
Objectives. Our goal was to assess the spectrum and frequency of pathogenic variants in known PD genes in familial PD patients from Latin America.
Methods. We selected 335 PD patients with a family history of PD from the Latin American Research Consortium on the Genetics of PD. We capture-sequenced the coding regions of 26 genes related to neurodegenerative parkinsonism. Of the 335 PD patients, 324 had sufficient sequencing coverage to be analyzed.
Results. We identified pathogenic variants in 41 individuals (12.7%) in FBXO7, GCH1, LRRK2, PARK7, PINK1, PLA2G6, PRKN, SNCA, and TARDBP, GBA1 risk variants in 25 individuals (7.7%), and variants of uncertain significance in another 24 individuals (7.4%) in ATP13A2, ATP1A3, DNAJC13, DNAJC6, GBA1, LRKK2, PINK1, VPS13C, and VPS35. Of the 70 unique variants identified, 19 were more frequent in Latin Americans than in any other population.
Conclusions. This is the first screening of known PD genes in a large cohort of patients with familial PD from Latin America. There were substantial differences in the spectrum of variants observed in comparison to previous findings from PD families of European origin. Our data provide further evidence that differences exist between the genetic architecture of PD in Latinos and European-derived populations. © 2024 The Author(s). Movement Disorders published by Wiley Periodicals LLC on behalf of International Parkinson and Movement Disorder Society.

Epidemiology of Huntington's Disease in Latin America: A Systematic Review and Meta-Analysis

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Revista: Movement Disorders
DOI: https://doi.org/10.1002/mds.29929
Tipo de articulo/ estudio: Articulo original/ Metaanálisis

Resumen:
Background. Latin America has played a crucial role in advancing our understanding of Huntington's disease (HD). However, previous global reviews include limited data from Latin America. It is possible that English-based medical search engines may not capture all the relevant studies.
Methods. We searched databases in Spanish, Portuguese, and English. The names of every country in Latin America in English-based search engines were used to ensure we found any study that had molecular ascertainment and provided general epidemiological information or subpopulation data. Additionally, we contacted experts across the region.
Results. The search strategy yielded 791 citations; 24 studies met inclusion criteria, representing 12 of 36 countries. The overall pooled prevalence was 0.64 per 100,000 (prediction interval, 0.06–7.22); for cluster regions, it was 54 per 100,000 (95% CI, 34.79–84.92); for juvenile HD, it was 8.7% (prediction interval, 5.12–14.35), and 5.9% (prediction interval, 2.72–13.42) for late-onset HD. The prevalence was higher for Mexico, Peru, and Brazil. However, there were no significant differences between Central America and the Caribbean versus South America.
Conclusion. The prevalence of HD appears to be similar across Latin America. However, we infer that our findings are underestimates, in part because of limited research and underdiagnosis of HD because of limited access to molecular testing and the availability of neurologists and movement disorders specialists. Future research should focus on identifying pathways to improve access to molecular testing and education and understanding differences among different ancestral groups in Latin America. © 2024 International Parkinson and Movement Disorder Society.

Occurrence of area postrema syndrome during follow-up: phenotype and influence over NMOSD activity in LATAM in real-world settings

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Revista: Journal of Neurology
DOI: https://10.1007/s00415-024-12371-8
Tipo de articulo/ estudio: Articulo original/ Estudio observacional

Resumen:
Introduction. We aimed to assess the frequency, duration, and severity of area postrema syndrome (APS) during follow-up in neuromyelitis optica spectrum disorder (NMOSD) patients, as well as its association with inflammatory activity and prognostic factors of APS severity in a real-world setting.
Methods. We conducted a retrospective study on a cohort of Latin American (LATAM) NMOSD patients who had experienced APS during their follow-up. Patients from Mexico, Peru, Brazil, Colombia, Panama, Chile and Argentina patients who met 2015 NMOSD criteria were included. We evaluated data on symptom type (nausea, vomiting and/or hiccups), frequency, duration, severity (measured by APS severity scale), association with other NMOSD core relapses, and acute treatments (symptomatic and immunotherapy or plasmapheresis). Logistic regression was conducted to evaluate factors associated with APS severity (vs. mild-moderate).
Results. Out of 631 NMOSD patients, 116 (18.3%) developed APS during their follow-up. The most common APS phenotype was severe. Inflammatory activity (i.e., relapses) significantly decreased after the onset of APS. Half of the patients experienced isolated APS with a median duration of 10 days, and the most frequently used acute treatment was IV steroids. All three symptoms were present in 44.6% of the patients. APS symptoms resolved following immunotherapy. Logistic regression did not identify independent factors associated with the severity of APS.
Conclusions. Our findings indicate that 18.3% of NMOSD patients developed APS during the follow-up period, with most patients fulfilling criteria for severe APS. The inflammatory activity decreased after the onset of APS compared to the previous year.

From laboratory to clinical practice: an update of the immunological and molecular tools for neurocysticercosis diagnosis

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Revista: Frontiers in Parasitology
DOI: https://doi.org/10.3389/fpara.2024.1394089
Tipo de articulo/ estudio: Estudio de revisión

Resumen: Neurocysticercosis (NCC) is caused by the invasion of Taenia solium larvae in the central nervous system (CNS) and stands as the predominant cause of epilepsy and other neurological disorders in many developing nations. NCC diagnosis is challenging because it relies on brain imaging exams (CT or MRI), which are poorly available in endemic rural or resource-limited areas. Moreover, some NCC cases cannot be easily detected by imaging, leading to inconclusive results. Multiple laboratory assays, principally immunological, have been developed to support the diagnosis and/or monitor the treatment efficacy, but its production can be costly, laborious, and non-globally accessible because they depend on parasite material. Therefore, recent advances have been focused on the implementation of recombinant or synthetic antigens as well as monoclonal antibodies for NCC immunodiagnosis purposes. Similarly, molecular diagnosis has been explored, obtaining promising results. Here we described the recent progress in the development of immunological and molecular diagnostic tools for NCC diagnosis over the past 13 years, discussing their potential application to address important challenges and how to focus future directions to improve NCC diagnosis with emphasis on enhance accessibility and the importance of test validation to provide an adequate support for clinical decisions.

AGOSTO

A scoping review of end-of-life discussions and palliative care: implications for neurological intensive care among Latinos in the U.S.

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Revista: The Lancet Regional Health - Americas
DOI: https://doi.org/10.1016/j.lana.2024.100873
Tipo de articulo/ estudio: Articulo de revisión

Resumen: Goals of care (Goals-of-care) discussions and palliative care (PC) are crucial to providing comprehensive healthcare, particularly for acute neurological conditions requiring admission to a neurological intensive care unit. We identified gaps in the literature and describe insight for future research on end-of-life discussions and PC for U.S. Latinos with acute neurological conditions. We searched 10 databases including peer-reviewed abstracts and manuscripts of hospitalized U.S. Latinos with acute neurological and non-neurological conditions. We included 44 of 3231 publications and identified various themes: PC utilization, pre-established advanced directives in Goals-of-care discussions, Goals-of-care discussion outcomes, tracheostomy or percutaneous gastrostomy tube placement rates among hospitalized Latinos. Our review highlights that Latinos appear to have lower palliative care utilization compared with non-Latino Whites and may be less likely to have pre-established advanced directives, more likely to have gastrostomy or tracheostomy placement and less likely to have do-not-resuscitate status.

Is SH3GL2 p.G276V the Causal Functional Variant Underlying Parkinson's Disease Risk at this Locus?

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Revista: Movement Disorders
DOI: 10.1002/mds.29719
Tipo de articulo/ estudio: Carta
Resumen: No abstract available

The parkin V380L variant is a genetic modifier of Machado-Joseph disease with impact on mitophagy

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Revista: Acta Neuropathologica Pathology and Mechanisms of Neurological Disease
DOI: 10.1007/s00401-024-02762-6
Tipo de articulo/ estudio: Articulo original/ Estudio observacional

Resumen: Machado–Joseph disease (MJD) is an autosomal dominant neurodegenerative spinocerebellar ataxia caused by a polyglutamine-coding CAG repeat expansion in the ATXN3 gene. While the CAG length correlates negatively with the age at onset, it accounts for approximately 50% of its variability only. Despite larger efforts in identifying contributing genetic factors, candidate genes with a robust and plausible impact on the molecular pathogenesis of MJD are scarce. Therefore, we analysed missense single nucleotide polymorphism variants in the PRKN gene encoding the Parkinson's disease-associated E3 ubiquitin ligase parkin, which is a well-described interaction partner of the MJD protein ataxin-3, a deubiquitinase. By performing a correlation analysis in the to-date largest MJD cohort of more than 900 individuals, we identified the V380L variant as a relevant factor, decreasing the age at onset by 3 years in homozygous carriers. Functional analysis in an MJD cell model demonstrated that parkin V380L did not modulate soluble or aggregate levels of ataxin-3 but reduced the interaction of the two proteins. Moreover, the presence of parkin V380L interfered with the execution of mitophagy—the autophagic removal of surplus or damaged mitochondria—thereby compromising cell viability. In summary, we identified the V380L variant in parkin as a genetic modifier of MJD, with negative repercussions on its molecular pathogenesis and disease age at onset.

Concomitant Parenchymal, Subarachnoid, and Ventricular Neurocysticercosis in Rome, Italy: A Case Report with a 4-Year Follow-Up

Autores: Maria Letizia Giancola, Shalom Haggiag, Angela Corpolong, Alessandro Stasolla, Andrea Mariano, Agazio Menniti, Paolo Campioni, Barbara Bartolini, Pierluigi Galizia, Antonella Vulcano, Carla Fontana, Claudio Gasperini, Elise O'Connell, Hector H Garcia, Theodore E Nash, Emanuele Nicastri.

Revista: Tropical Medicine and Infectious Disease
DOI: https://doi.org/10.3390/tropicalmed9080187
Tipo de articulo/ estudio: Articulo original/ Reporte de caso

Resumen: Neurocysticercosis (NCC) is caused by the larval stage of Taenia solium. This parasitic disease is endemic in many areas of the world and is emerging in Europe. NCC can affect different brain regions, but simultaneous involvement of the parenchymal, subarachnoid, and ventricular regions is rare. We report the case of a 39-year-old woman from Honduras, resident in Rome for 10 years, who presented to the Emergency Department complaining of headaches, transient hemianopsia, and bilateral papilledema. MRI showed a concomitant parenchymal, subarachnoid, and ventricular involvement in the brain. T. solium IgG antibodies were detected in the blood. The etiological diagnosis of NCC was obtained by identifying T. solium in cerebrospinal fluid using Next Generation Sequencing. Endoscopic neurosurgery with the placement of a ventricular shunt and medical long-term anti-parasitic treatment with a cumulative number of 463 days of albendazole and 80 days of praziquantel were performed. A successful 4-year follow-up is reported. NCC is one of the most common parasitic infections of the human CNS, but it is still a neglected tropical disease and is considered to be an emerging disease in Europe. Its diagnosis and clinical management remain a challenge, especially for European clinicians.

Mass chemotherapy with niclosamide for the control of Taenia solium: population-based safety profile and treatment effectiveness

Autores: Melissa T. Wardle, Samantha E. Allen, Ricardo Gamboa, Percy Vilchez, Seth E. O'Neal, Claudio Muro, Andrés G. Lescano, Luz M. Moyano, Guillermo E. Gonzalvez, Armando E. González, Robert H. Gilman, Héctor H. García, Cysticercosis Working Group in Peru (CWGP)

Revista: The Lancet Regional Health - Americas
DOI: https://doi.org/10.1016/j.lana.2024.100876
Tipo de articulo/ estudio: Articulo original/ Estudio observacional

Resumen:
Background. Mass drug administration (MDA) with niclosamide (NSM) can be used to control taeniasis, the cause of neurocysticercosis. NSM is 84.3% effective against taeniasis and is considered safe as it is not absorbed from the intestinal tract. However, information on its safety and effectiveness during MDA is limited. We evaluated the effectiveness of NSM and reported adverse events (AEs) during a cysticercosis elimination program in Tumbes, Peru.
Methods. Three rounds of NSM at 4-month intervals were offered to 77,397 eligible residents. We revisited all participants in their homes 72 h after each round to collect information regarding AEs. We also collected post-treatment stool samples to diagnose taeniasis after the first round, followed by a second sample at 30 days from those infected to evaluate NSM's effectiveness
Findings. During implementation, 68,751 individuals were administered at least one dose of NSM (mean age 29 years, SD 20; 52% male), and 65,551 (95.3%) were visited post-treatment. 988 (1.5%) reported experiencing at least one AE. Almost all AEs (99.2%) were of mild intensity, with no severe AEs recorded. Of 211 participants diagnosed with taeniasis, 188 provided a follow-up stool sample 30-days after treatment and 141 were cured (treatment effectiveness 75.0%). Older age and higher coproantigen levels were significantly associated with treatment failure.
Interpretation. MDA with NSM is safe in Taenia solium endemic settings. However, the effectiveness following one dose is lower than expected, which suggests additional treatment may be necessary to enhance the infection control efforts.

Exploring seizure characteristics in individuals with autoimmune encephalitis: A comprehensive retrospective study in a low-middle-income country setting

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Revista: Epilepsy Research
DOI: https://doi.org/10.1016/j.eplepsyres.2024.107439
Tipo de articulo/ estudio: Articulo original/ Estudio observacional

Resumen:
Introduction. *Seizures* and epilepsy are well-documented in association with autoimmune encephalitis. Despite this, a notable gap exists in understanding the persistence of seizures beyond the acute phase, particularly within the context of low- and low-middle-income settings.
Objective. To evaluate the frequency, clinical characteristics, diagnosis, and potential factors associated with the occurrence and persistence of seizures in autoimmune encephalitis patients.
Methods. This was a retrospective, cross-sectional study. Patients diagnosed with possible, probable or confirmed autoimmune encephalitis according to the Graus criteria at the "Instituto Nacional de Ciencias Neurológicas" in Lima, Peru, were included between January 2018 and April 2023. Demographic, clinical, diagnosis, and management information was recorded. A bivariate analysis was performed considering the persistence of seizures at one-year follow-up and a second analysis was performed to compare the groups according to the anti N-methyl-D-aspartate receptor (NMDAR) antibody results.
Results. Sixty patients predominantly male (40; 66.7 %) were included. Only 36 (60 %) patients were tested for antibodies, 16 (44.4 %) were NMDAR positive. 46 (76.7 %) patients had at least one seizure and 13 (37.1 %) had seizures after 1 year of follow-up. Patients with seizure relapse were younger, 20 (IQR: 18–28) versus 29.5 years (IQR: 21–48), p=0.049. Four (44.4 %) patients with persistent seizures had positive NMDAR results. Similar sex distributions, no differences in seizure characteristics, and higher CSF cell count in the NMDAR-positive group were observed. Neuroimaging, EEG findings, and follow-up times were comparable between the groups.
Conclusions. We found a 37.1 % seizures rate after one year of follow-up, predominantly in younger patients.

Availability and barriers to access post-stroke rehabilitation in Latin America

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Revista: Journal of Stroke and Cerebrovascular Diseases
DOI: https://doi.org/10.1016/j.jstrokecerebrovasdis.2024.107917
Tipo de articulo/ estudio: Articulo original/ Estudio observacional

Resumen:
Objectives. To describe the availability and barriers to access post-stroke rehabilitation services in Latin America
Materials and methods. We conducted a multi-national survey in Latin American countries. The survey consisted of three sections: (1) the national state of post-stroke rehabilitation; (2) the local state of post-stroke rehabilitation; and (3) the coverage and financing of post-stroke services. Stroke leaders from the surveyed countries were involved in developing and disseminating the survey.
Results. 261 responses were collected from 17 countries. The mean age of respondents was 42.4 ± 10.1 years, and 139 (54.5 %) of the respondents were male. National clinical guidelines for post-stroke rehabilitation were reported by 67 (25.7 %) of the respondents. However, there were discrepancies between respondents within the same country. Stroke units, physiotherapy, occupational therapy, speech therapy, and neuropsychological therapy services were less common in public than private settings. The main barriers for inpatient and outpatient services included limited rehabilitation facilities, coverage, and rehabilitation personnel. The main source of financing for the inpatient and outpatient services was the national health insurance, followed by out-of-pocket payments. Private and out-of-pocket costs were more frequently reported in outpatient services.
Conclusions. Post-stroke rehabilitation services in Latin American countries are restricted due to a lack of coverage by the public health system and private insurers, human resources, and financial aid. Public settings offer fewer post-stroke rehabilitation services compared to private settings. Developing consensus guidelines, increasing coverage, and using innovative approaches to deliver post-stroke rehabilitation is paramount to increase access without posing a financial burden.

SETIMEBRE

The real-world applicability of the 2023 international myelin oligodendrocyte glycoprotein antibody-associated disease criteria in a Latin American cohort

Autores: Edgar Carnero Contentti, Claudia Pestchanker, Ethel Ciampi, Sheila Castro Suarez, Cesar Caparo Zamalloa, Vanesa Daccach Marques, Katharina Messias, José Ignacio Gortari, Verónica Tkachuk, Berenice Silva, Carolina Mainella, Saúl Reyes, Jaime Toro, Juan Rodriguez, Edgar Correa-Diaz, Juan I. Rojas, Friedemann Paul

Revista: European Journal of Neurology
DOI: https://doi.org/10.1111/ene.16445
Tipo de articulo/ estudio: Articulo original/ Estudio observacional

Resumen:
Background and Purpose. The diagnostic criteria for myelin oligodendrocyte glycoprotein antibody (MOG-IgG)-associated disease (MOGAD) were published in 2023. We aimed to determine the performance of the new criteria in Latin American (LATAM) patients compared with the 2018 criteria and explore the significance of MOG–IgG titers in diagnosis.
Methods. We retrospectively reviewed the medical records of LATAM (Argentina, Chile, Brazil, Peru, Ecuador, and Colombia) adult patients with one clinical MOGAD event and MOG-IgG positivity confirmed by cell-based assay. Both 2018 and 2023 MOGAD criteria were applied, calculating diagnostic performance indicators.
Results. Among 171 patients (predominantly females, mean age at first attack = 34.1 years, mean disease duration = 4.5 years), 98.2% patients met the 2018 criteria, and of those who did not fulfill diagnostic criteria (n = 3), all tested positive for MOG-IgG (one low-positive and two without reported titer). Additionally, 144 (84.2%) patients met the 2023 criteria, of whom 57 (39.5%) had MOG-IgG+ titer information (19 clearly positive and 38 low-positive), whereas 87 (60.5%) patients had no MOG-IgG titer. All 144 patients met diagnostic supporting criteria. The remaining 27 patients did not meet the 2023 MOGAD criteria due to low MOG-IgG (n = 12) or lack of titer antibody access (n = 15), associated with the absence of supporting criteria. The 2023 MOGAD criteria showed a sensitivity of 86% (95% confidence interval = 0.80–0.91) and specificity of 100% compared to the 2018 criteria.
Conclusions. These findings support the diagnostic utility of the 2023 MOGAD criteria in an LATAM cohort in real-world practice, despite limited access to MOG-IgG titration.

Characterization of antigenic proteins of the *Taenia solium* postoncospheral form

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Revista: Molecular and Biochemical Parasitology
DOI: https://doi.org/10.1016/j.molbiopara.2024.111621
Tipo de articulo/ estudio: Articulo original/ Estudio observacional

Resumen: Neurocysticercosis is the leading cause for acquired epilepsy worldwide, and it is caused by the larval stage of the parasite Taenia solium. Several proteins of this stage have been characterized and studied to understand the parasite-host interaction, however, the proteins from the early cysticercus stages (the postoncospheral form) have not yet been characterized. The study of the postoncospheral form proteins is important to understand the host-parasite relationship in the early stages of infection. The aim of this work was to identify postoncospheral form antigenic proteins using sera from neurocysticercosis patients. T. solium activated oncospheres were cultured in HCT-8 cells to obtain the postoncospheral form. Soluble total and excretory/secretory proteins were obtained from the postoncospheral form and were incubated with both pool sera and individual serum of neurocysticercosis positive human patients. Immunoblotting showed target antigenic proteins with apparent molecular weights of 23 kDa and 46–48 kDa. The 46–48 kDa antigen bands present in soluble total and excretory/secretory postoncospheral form proteins were analyzed by LC-MS/MS; proteins identified were: nuclear elongation factor 1 alpha, enolase, unnamed protein product/antigen diagnostic GP50, calcium binding protein calreticulin precursor and annexin. The postoncospheral form expresses proteins related to interaction with the host, some of these proteins are predicted to be exosomal proteins. In conclusion, postoncospheral proteins are consistent targets of the humoral immune response in human and may serve as targets for diagnosis and vaccines.