30TH INTERNATIONAL CONGRESS OF CLINICAL NEUROPHYSIOLOGY (ICCN) OF THE IFCN EVENT-RELATED BRAIN POTENTIALS IN PATIENTS WITH BRAIN INJURY Angela Maria Costa de Souza¹, Fernanda Vieira Moraes¹, Mara Lucia Carneiro Guimaraes¹, Victor Frak². 1. REHABILITATION AND READAPTATION CENTER (CRER) NEUROPHYSIOLOGY DEPARTMENT - GOIANIA, GO, BRAZIL

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ABSTRACT

Objetive: Evoked potentials are used up 20 years in comatose patients in order to assess brain function and awakening prognosis. Recently Evoked Potentials Related Events (ERP) has been used in coma for identifying patients in minimally conscious state.

The main objective of this study is clarify the correlation between the patterns of ERP and levels of physical and cognitive disabilities due to brain injury. We use the classical paradigm of "oddball" and assessing the degree of disability by Glasgow Outcome Scale (GOS).

Methods: ERP, a standard "oddball" paradigm and auditory evoked potentials, early responses (BERA) were recorded in 23 normal and 46 brain injuried patients. The Glasgow Outcome Scale was determined concurrently with the P300 ERP.

Results: GOS: Good Recovery 7/46 (15%), Moderate Disability 9/46 (20%), Severe Disability 18/46 (39%) and Vegetative State 12/46 (26%). P3b to desviant was found in 25/46 patients. P3a to desviant was found in 6 patients .We were observed a higher incidence of absence of the N2 10/12 and alteration of BERA7/12 in vegetative state. Twenty percent (20%) of the Vegetative Status patient 2/12 had P300a ERP.

Conclusion:The ERP is useful in the evaluation of patients with brain injury in order to investigate the level of awareness. The absent of N2 strongly describe a vegetative state.

INTRODUCTION

Evoked potentials are used up 20 years in comatose patients in order to assess brain function and awakening prognosis. The main objective of this study is to clarify the correlation between the patterns of ERP and levels of physical and cognitive disabilities due to brain injury.

METHODOLOGY

A cross-sectional study was performed in patients with Stroke or Traumatic Brain Injury to estimate ERP and its association with the Glasgow Outcome Scale from March 1,2013 to September 10, 2013. The ERP was assessed 1 year after brain injury (1 month-9 years).

A typical P300 paradigm comprises a rapidly sequence of the oddball paradigm. If the participant was unable to perform the task, a passive oddball was done to elicit P3a⁷

A montage for recording P300 include Cz and Pz scalp locations. Common reference was the ear lobe.

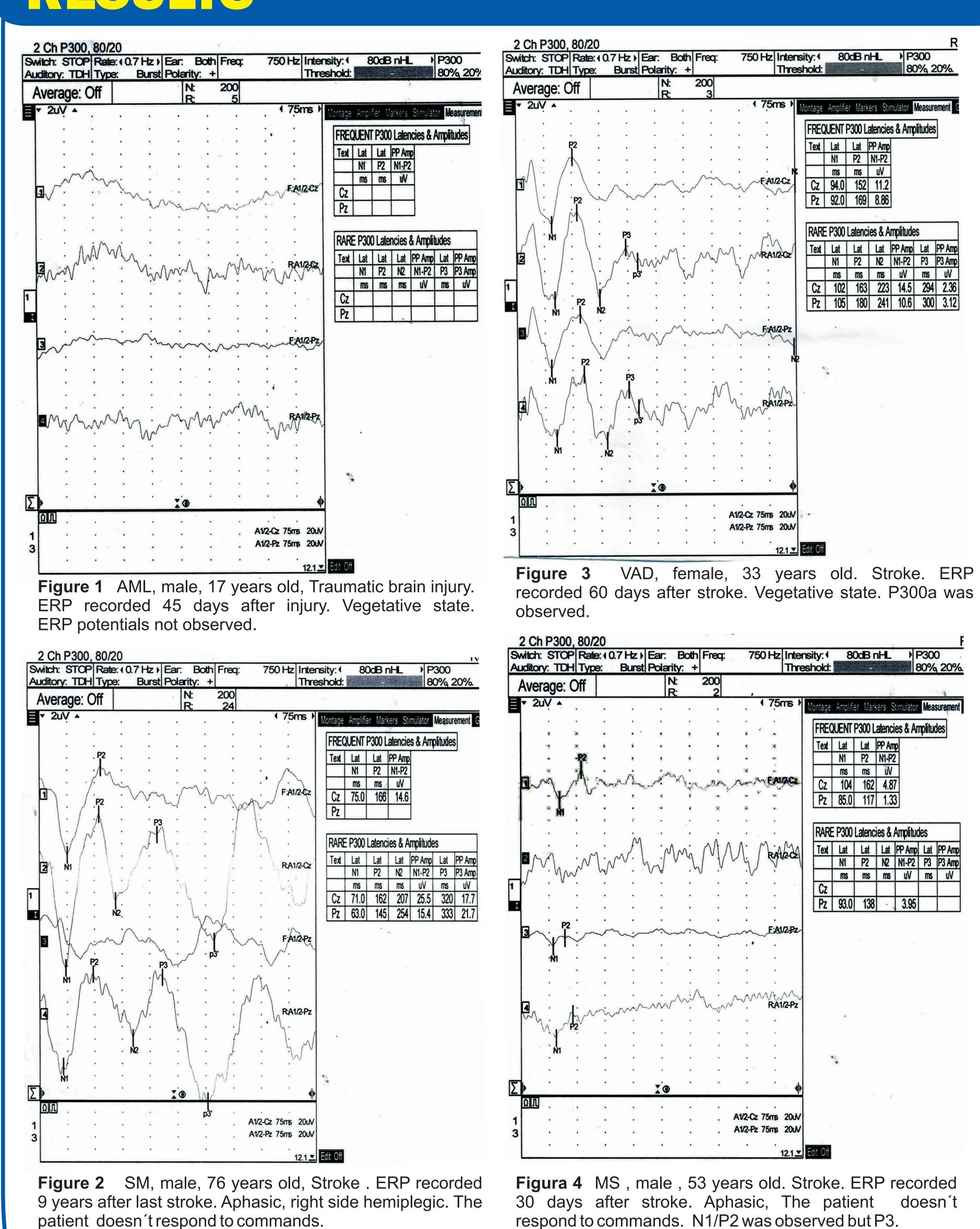
The scalp location where P300 was of maximum amplitude is used to measure latency.

DISCUSSION

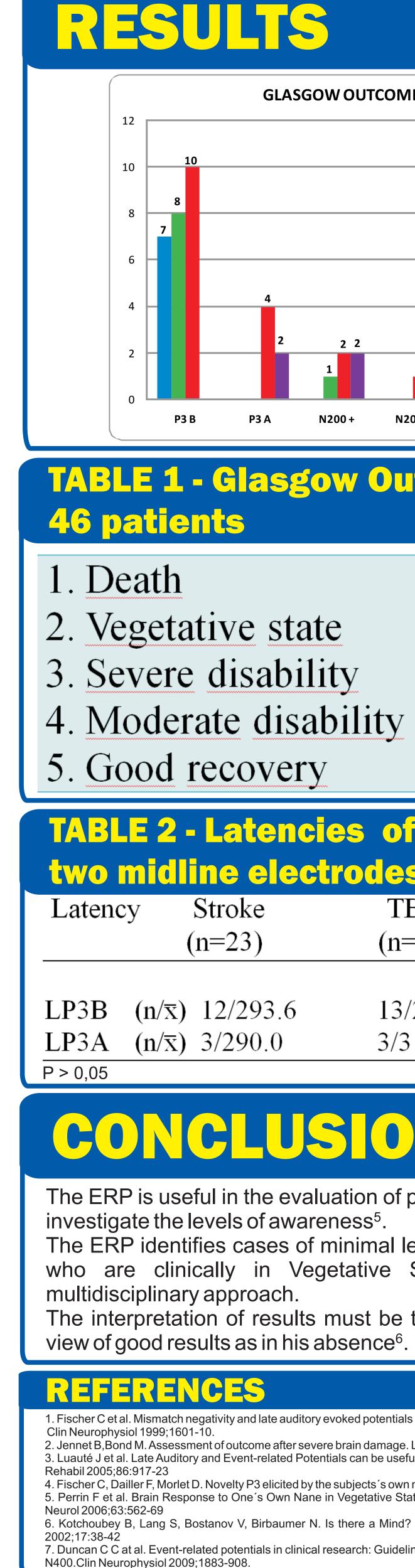
Luauté J et al (2005)³ indicate the presence of the N200 potential and good prognosis for return to consciousness after awakening from coma. Our study did not confirm those data. Our results point to the absence of the N200 component and the presence of vegetative state, the small number of patients analyzed in the present study may explain the conflicting results.

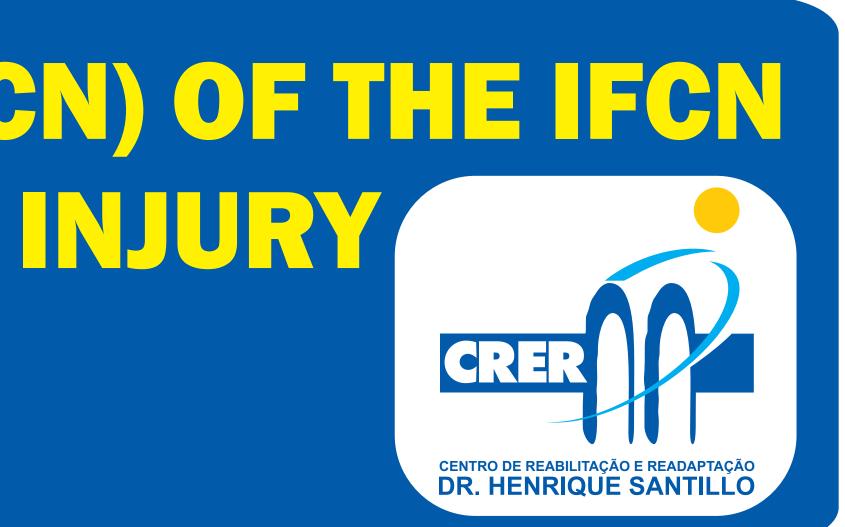
Fischer et al (2008)⁴ indicate the presence of potential P3A and good cognitive performance upon awakening from a coma, our results point to the presence of P3B indicating better cognitive performance. The discrepancy in both results are probably due to the difference of the type of patients studied.

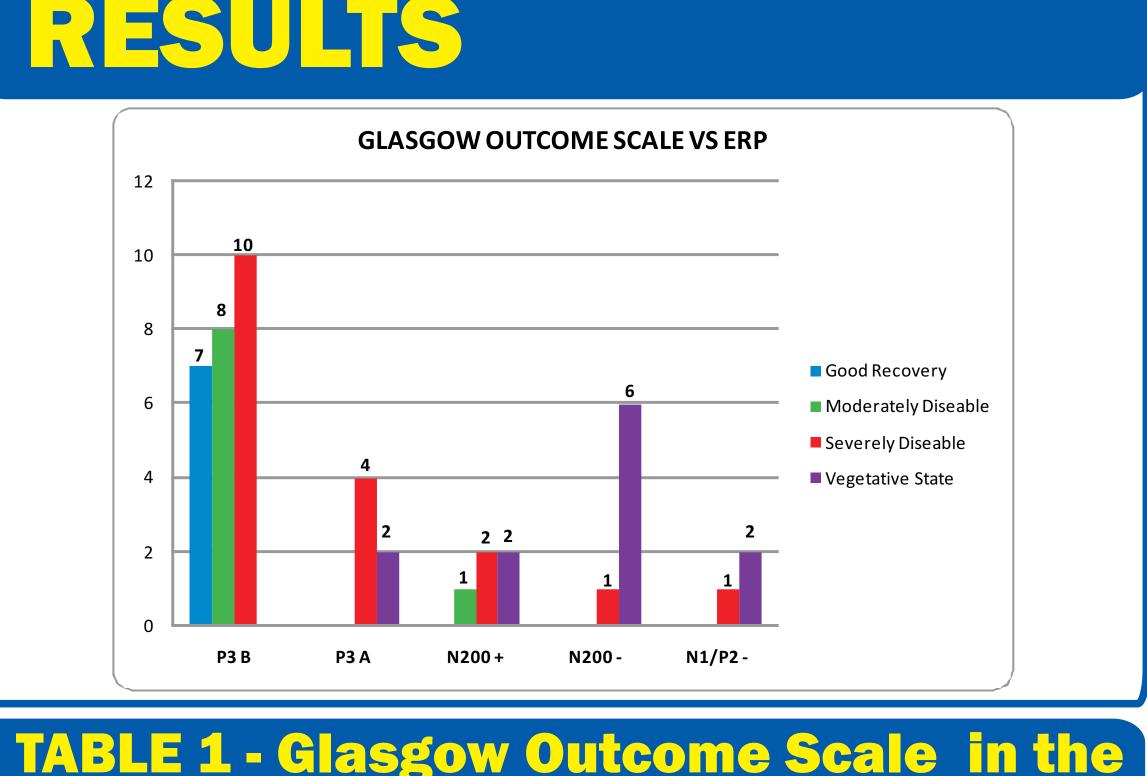
RESULTS



VAD, female, 33 years old. Stroke. ERP







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ve state	12
isability	18
e disability	9
covery	7

atencies of P3B and P3A at the			
e electi	rodes Cz,Pz	z vs Etiology	
oke	TBI	control group	
23)	(n=23)	(n=23)	
/293.6	13/291.6	23/301.0	

CONCLUSION

3/312.5

The ERP is useful in the evaluation of patients with brain injury in order to

The ERP identifies cases of minimal level of awareness among patients who are clinically in Vegetative State, helping the team to a

The interpretation of results must be treated carefully from the point of

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