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Cognitive AA pilot scheme – Circulation 2018-1 - Participants Report

Participants were able to view the cases and submit their results using the Formdesk web site: http://www.formdesk.com/EMQN/ERNDIM_Cognitive_Amino_Acids_pilot_results_Submission .

Case 2018-1

Sample details:
These results were from 1 year old girl, full term normal delivery, who presented to the liver unit with encephalopathy, deranged liver function tests and abnormal clotting. She had had 2 previous episodes over the previous month with decreased feeding, vomiting, drowsiness and lethargy. Ammonia concentration on admission was 157 µmol/L. Urine orotic acid was >1000umol/mmol creatinine. DNA analysis showed a c.106C>T truncating mutation in the ornithine carbamoyl transferase (OTC) gene.
Plasma amino acid concentrations together with the laboratories reference ranges were provided.

Correct findings / abnormalities:
Elevated glutamine and low citrulline each scored one point. Other abnormalities, increased alanine, proline, methionine and or tyrosine scored 0.5 points when low citrulline was not mentioned.

Correct Diagnosis and further tests:
OTC deficiency was scored with one point and a non-specific urea cycle defect received 0.5 points.

Further testing by measurement of ammonia or orotic acid/organic acids scored 0.5 points while we considered that those labs that recommended relevant DNA testing should be rewarded with an extra 0.5 points.

Comments on overall performance:
Overall proficiency was only fairly satisfactory at 63%. Performance for diagnosis and further test recommendations was much lower than abnormalities probably because of the somewhat strict scoring criteria.

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Case 2018-2

Sample details:
These results were from a patient born by emergency caesarean section, who was well at birth and went home. Vomiting and not thriving were observed so readmitted to local hospital at age 6 weeks. Conjugated jaundice was noted (total bilirubin 124 umol/l, conjugated bilirubin 68 umol/L). A homozygous mutation in the SLC25A13 gene (c.1610-1612delTAGinsAT) was identified.

Plasma amino acid concentrations together with the laboratories reference ranges were provided.

Correct findings / abnormalities:

Increased citrulline (one point) and associated increases of threonine, methionine and tyrosine (one point) were clearly evident.

Correct Diagnosis and further tests:
A diagnosis of citrin deficiency was correct and scored one point.
Further testing by mutation analysis of the SLC25A13 gene was considered key and scored one point. If this was not mentioned checking of ammonia received 0.5 points.

Comments on overall performance:
Performance was very good with 94% overall proficiency, again with scores better for analytical findings.

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Case 2018-3

Sample details:
These results were from a patient with glycogen storage disease type 1. At age 3 months fever, vomiting, reduced feeding were noted and a urinary tract infection was diagnosed. Abdominal ultrasound revealed hepatomegaly. Laboratory investigations showed elevated liver enzymes, cholesterol, uric acid and metabolic acidosis (elevated lactic acid concentration). Liver biopsy showed glycogen storage and enzyme activity of glucose-6-phosphatase activity was not detectable. Molecular genetic confirmation showed a homozygous mutation in G6PC-gene.
Since then the patient is treated with carbohydrate defined nutrition and is a normal otherwise healthy boy.

Plasma amino acid levels together with results of relevant clinical chemistry parameters were provided.

Correct findings / abnormalities:
Increased alanine was scored with one point. Mention of all of abnormal triglycerides, lactate and uric acid received one point, and any two of these 0.5 points. .

Correct Diagnosis and further tests:
Glycogen storage disease type one was considered to be correct and scored one point. Mention of an unspecific glycogen storage disease scored 0.5 points.
Further testing by relevant genetic analysis or measurement of glucose-6-phosphatase was considered to be needed and scored one point.

Comments on overall performance:

Overall proficiency was fairly good at 75% and as for the other two cases in this circulation performance on identification of abnormalities was better than that for diagnosis and recommendations for further tests.

Comments on the whole of the second circulation results

In contrast to the circulation of 2017 it was decided to use half points for scoring to allow more flexibility in the evaluation.
All four evaluators scored all results independently and where four or three of their scores were in agreement, this was taken as final. In cases where such agreement was missing further close evaluation based on agreed scoring criteria was used to decide on the final score.
Generally cases were more difficult than in the 2017 circulation and there was a clear trend towards better performance for analytical findings than for interpretative aspects but it is too early to draw concrete conclusion on this.

We encourage participants to send us comments and suggestions regarding this scheme and do not hesitate to contact us if you question any of our scoring.

Date: 10.07.2018.

The Scientific evaluators:

Rachel Carling, Mary Anne Preece, Sabine Scholl and Brian Fowler

ERNDIM
QUALITY ASSURANCE IN LABORATORY TESTING FOR IEM

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Lab I.D.	Sample 2018-1-Scores				Sample 2018-2-Scores				Sample 2018-3-Scores				
	Abnormal 2 pts	Diag 1 pt	Tests 1pt	Total	Abnormal 2 pts	Diag 1 pt	Tests 1pt	Total	Abnormal 2 pts	Diag 1 pt	Tests 1 pt	Total	**Total**
1	1.5	1	1	3.5	1.5	1	1	3.5	2	1	1	4	**11**
2	2	1	1	4	2	1	1	4	2	1	1	4	**12**
3	1.5	0	0.5	2	2	1	1	4	2	0	0	2	**8**
4	1.5	0	0.5	2	2	1	1	4	2	1	0	3	**9**
5	1.5	0	0.5	2	2	1	1	4	2	0	0	2	**8**
6	2	0	0.5	2.5	2	1	1	4	2	1	1	4	**10.5**
7	2	0.5	1	3.5	2	1	1	4	2	0.5	0.5	3	**10.5**
8	1.5	0.5	0.5	2.5	2	0	0.5	2.5	2	0.5	0	2.5	**7.5**
9	2	1	1	4	2	1	1	4	1	0.5	1	2.5	**10.5**
10	2	1	1	4	2	1	1	4	2	0.5	0.5	3	**11**
11	0	0	0	0	1.5	0	0.5	2	1	0	0	1	**3**
12	0.5	0	0.5	1	2	1	0.5	3.5	2	0	0	2	**6.5**
13	0.5	0	0	0.5	2	1	0	3	2	0	0	2	**5.5**
14	2	1	1	4	2	1	1	4	1	0.5	0	1.5	**9.5**
15	1.5	0.5	0	2	2	1	1	4	1	1	0.5	2.5	**8.5**
16	0.5	0	0	0.5	2	1	1	4	1.5	0	0	1.5	**10**
17	1.5	0	0.5	2	2	1	1	4	2	1	1	4	**10**
18	1.5	0	0	1.5	2	0	0.5	2.5	2	1	1	4	**8**
19	2	1	1	4	2	1	1	4	2	0.5	1	3.5	**11.5**
20	1.5	0.5	0.5	2.5	2	1	1	4	2	1	1	4	**10.5**
21	2	1	1	4	2	1	1	4	1	1	0	2	**10**
22	2	1	0.5	3.5	2	1	1	4	2	0.5	0.5	3	**10.5**
23	1.5	1	1	3.5	2	1	1	4	2	0.5	1	3.5	**11**
24	1.5	0	0.5	2	2	1	1	4	2	1	1	4	**10**
25	0	0	0.5	0.5	1.5	1	0.5	3	0.5	0	0	0.5	**4**
26	1.5	1	1	3.5	2	1	1	4	2	1	1	4	**11.5**
27	1.5	0	0.5	2	2	1	0.5	3.5	2	1	0.5	3.5	**9**
28	2	1	1	4	2	1	1	4	2	1	0	3	**11**
29	2	1	0.5	3.5	2	1	0.5	3.5	2	1	0.5	3.5	**10.5**
30	0.5	0	0.5	1	2	1	1	4	1	1	1	3	**8**
31	2	0.5	0.5	3	2	1	1	4	2	0.5	0.5	3	**10**
32	2	0	0	2	2	1	1	4	2	1	1	4	**10**
33	2	1	0.5	3.5	2	1	1	4	2	1	1	4	**11.5**
34	2	1	1	4	2	1	1	4	2	1	1	4	**12**
35	2	1	1	4	2	1	1	4	2	0.5	1	3.5	**11.5**
36	1.5	0.5	0.5	2.5	2	1	1	4	2	1	1	4	**10.5**
37	1.5	0	0	2.5	2	1	1	4	2	1	1	4	**10.5**
38	1.5	0	0.5	2	2	1	0.5	3.5	2	0.5	0	2.5	**8**
39	1.5	0	0.5	2	2	1	1	4	1	1	1	3	**9**
40	1.5	0	0	1.5	2	1	1	4	1	0	0	1	**6.5**
41	1.5	0	0.5	2	2	1	0.5	3.5	2	1	0	3	**8.5**
42	2	1	0.5	3.5	2	1	1	4	1	1	1	3	**10.5**
43	1.5	0.5	0.5	2.5	2	1	1	4	2	0.5	1	3.5	**10**
44	2	0	0	2	2	1	1	4	2	0	0	2	**8**
45	1.5	1	0.5	3	2	1	1	4	2	1	1	4	**11**
46	2	0.5	0.5	3	2	1	0.5	3.5	2	1	1	4	**10.5**
Total	71.5	21	25	115.5	90.5	43	39.5	173.5	81	31	26.5	138.5	
% prof.	77	46	54	63	98	93	86	94	88	67	58	75	