

Hydrocephalus 2022 Annual Meeting

Friday, 9 September 2022

Sahlgrenska University Hospital

08:00 – 11:30	Hydrocephalus Society Board Meeting		
Sahlgrens Aula at Sahlgrenska University Hospital			
12:30 – 17:00	IDIOPATHIC NORMAL PRESSURE HYDROCEPHALUS Pre-Meeting Educational Seminar		
	Chair: Mats Tullberg		
12:30 – 13:00	Light lunch served		
13:00 – 13:25	Demography, epidemiology		
13.00 - 13.10	<i>Kerstin Andrén, Sweden</i>		
13.10 - 13.25	<i>Carsten Wikkelsø, Sweden</i>		
13:25 – 14:00	Symptoms and signs		
13.25 - 13.40	<i>Giorgio Palandri, Italy</i>		
13.40 - 14.00	<i>Per Hellström, Sweden</i>		
14:00 – 14:35	Radiology		
14.00 - 14.15	<i>Simon Agerskov, Sweden</i>		
14.15 - 14.35	<i>Shigeki Yamada, Japan</i>		
14:35 – 15:00	Coffee Break		
15:00 – 15:35	Supplementary tests		
15.00 - 15.15	<i>Anders Eklund, Sweden</i>		
15.15 - 15.35	<i>Masakazu Miyajima, Japan</i>		
15:35 – 16:15	Treatment		
15.35 - 15.50	<i>Mark Hamilton (VP/VA-shunt), USA</i>		
15.50 - 16.05	<i>Madoka Nakajima (LP-shunt), Japan</i>		
16.05 - 16.20	<i>Uwe Kehler (complications and surgical follow-up after shunting), Germany</i>		
16:20 – 16:50	Outcome		
16.20 - 16.35	<i>Mats Tullberg, Sweden</i>		
16.35 - 16.50	<i>Per Hellström - Kerstin Andrén, Sweden</i>		
Post Hotel, Vinterträdgården			
19:00	Welcome Reception		

Saturday, 10 September 2022

Drottningporten 1-2		Drottningporten 3	
07:00 – 08:00	Registrations		
08:00 – 08:35	Opening Welcome Address		
08.00 - 08.05	<i>Uwe Kehler, President of the Hydrocephalus Society</i>		
08.05 - 08.10	<i>Mats Tullberg, Hydrocephalus 2022 President</i>		
08.10 - 08.20	<i>Mayor, City of Gothenburg and the Västra Götaland region Welcome address</i>		

08.20 - 08.25	<i>Eric Hanse, Pro-Dean, Sahlgrenska Academy, University of Gothenburg</i>		
08.25 - 08.35	<i>Carsten Wikkelsø, Sweden</i>		
08.35 - 09.15	Session 1: Hakim Lecture		
08.35 - 09.10	Hakim Lecture title: Standing on the shoulders of giants <i>Daniele Rigamonti, USA</i>		
09.10 - 09.15	Q&A		
09.15 - 09.45	Session 2: Rethinking the Classification of Hydrocephalus		
	Chairs: Uwe Kehler, Carsten Wikkelsø, Giorgio Palandri		
09.15 - 09.25	Core-ASPECT Hydrocephalus classification (EANS) <i>Marianne Juhler, Denmark</i>		
09.25 - 09.45	A new classification of CHiA based on symptoms and signs <i>Ahmed Toma, UK and Mats Tullberg, Sweden</i>		
09.45 - 10.15	Coffee Break & Exhibition		
10.15 - 11.30	Session 3: Young Investigators Awards I		
10.15 - 10.25	Analysis of the intracranial pressure waveform in hydrocephalus patients using a non-invasive device <i>46, Raphael Bertani</i>		
10.25 - 10.35	Sleep stages variation in intracranial pressure and pulse amplitude <i>51, Lucia Darie</i>		
10.35 - 10.45	Intracranial pressure dynamics during gait <i>54, Matthew Bancroft</i>		
10.45 - 10.55	Comparative effects of ventriculoperitoneal shunt and endoscopic third ventriculostomy with choroid plexus cauterization in a pig model of hydrocephalus <i>160, Maria Garcia Bonilla</i>		
10.55 - 11.05	Use of polyvinylpyrrolidone-coated catheters to decrease astrocyte and choroid plexus epithelium adhesion and improve flow/pressure performance in a new catheter assay system <i>153, Alvin Chan</i>		
11.05 - 11.15	Q-DESH: A Quantitative Volumetric Measure of Disproportionately Enlarged Subarachnoid-Space Hydrocephalus <i>138, Sofia Möckelind</i>		
11.15 - 11.25	Diagnosing and Subgrouping Normal Pressure Hydrocephalus Using Independent Component Analysis. <i>72, Emanuele Camerucci</i>		
11.25 - 11.30	Conclusions		
11.30 - 12.15	Hydrocephalus Society Annual General Meeting		
12.15 - 13.30	Industry Sponsored Lunch Seminar		
13.50 - 15.30	Session 4: Frontiers in experimental Hydrocephalus - Genetics, Cilia function	13.30 - 15.30	Session 5: Novel RCTs in hydrocephalus

		Chairs: Chair I TBA Introduction-why RCTs? Chair II Giovanni Grassi (Italy)	
13.50 - 14.10	Keynote Lecture - Genetics in Hydrocephalus	13.30 - 13.45	Keynote I: SINPHONI-3 - benefits of shunt in iNPH patients with evidence of Alzheimer's disease
	<i>Ville Leinonen, Finland</i>		<i>Etsuro Mori, Japan</i>
14.10 - 14.20	Clinical and Genetic Findings in Normal Pressure Hydrocephalus (NPH) Patients with Possible Mutations in the CWH43 Gene	13.45 - 13.55	Treating Hydrocephalus by Shunting to the Venous Intracranial Sinus - First in Human SinuShunt Project no.849502 Supported by the European Union's Horizon 2020 Programme
	<i>32, Neill Graff-Radford</i>		<i>11, Sune Munthe</i>
14.20 - 14.30	Ptpn20 deletion in H-Tx rats enhances phosphorylation of the NKCC1 cotransporter in the choroid plexus	13.55 - 14.05	DRAIN – Double-blind Randomized Acetazolamide trial in Idiopathic Normal pressure hydrocephalus
	<i>126, Hanbing Xu</i>		<i>121, Johan Virhammar</i>
14.30 - 14.40	Experimental investigation of the influence of pathological blood dynamics on the CSF system with regard to Normal Pressure Hydrocephalus	14.05 - 14.15	The PULSE-OPT study: pilot study on optimizing shunt settings based on ICP pulse amplitudes
	<i>109, Anne Benninghaus</i>		<i>111, Sara Qvarlander</i>
14.40 - 15.00	Keynote Lecture - Cilia function and its role in Hydrocephalus	14.15 - 14.30	Keynote II: PENS II - Placebo-controlled effectiveness in iNPH shunting
	<i>Nathalie Jurisch-Yaksi, Norway</i>		<i>Mark Luciano, USA</i>
15.00 - 15.10	Dimethyl sulfoxide-dependent ventriculomegaly. A new pathway that explains one etiology of hydrocephalus	14.30 - 14.40	Efficacy, safety and cost analysis of the Sphera Pro Valve in the treatment of Normal Pressure Hydrocephalus
	<i>91, Leandro Castaneyra</i>		<i>58, Fernando Pinto</i>
15.10 - 15.20	CSF to blood clearance differs substantially across individuals and patients with CSF disorders	14.40 - 14.50	A Standardized Infection Prevention Bundle Reduces Cerebrospinal Shunt Infections in Adult Ventriculoperitoneal Shunt Surgeries Without the Use of Antibiotic Impregnated Catheters
	<i>112, Per Kristian Eide</i>		<i>33, Mark Hamilton</i>
15.20 - 15.30	Dynamic ADC analysis During Cardiac Cycle in Positive and Negative CSF Tap Test Groups in Possible Idiopathic Normal Pressure Hydrocephalus	14.50 - 15.05	Safety and effectiveness of the assessment and treatment of idiopathic normal pressure hydrocephalus in the Adult Hydrocephalus Clinical Research Network
	<i>76, Mitsuhiro Mase</i>		<i>29, Michael Williams</i>
		15.05 - 15.20	Keynote III: PCORI - Anterior vs posterior entry site for CSF shunt inserion
			<i>Bill Whitehead, USA</i>
		15.20 - 15.30	Invited lecture: Opportunities in unexpected outcomes in hydrocephalus
			<i>Harold Rekate, USA</i>
15.30 - 16.00	Coffee Break & Exhibition		
16.00 - 17.40	Session 6: Young Investigators Awards II		
16.00 - 16.10	Normal Pressure Hydrocephalus: Only subjective improvement after spinal tap test – is that enough for shunt indication?		
	<i>43, Maximilian Greiner-Perth</i>		

16.10 - 16.20	Differentiation between Higher-Level Gait Disorder and matched controls using deep learning on brain MR images from the VESPR cohort			
	<i>136, Klara Mogensen</i>			
16.20 - 16.30	In the older population, large ventricular volume is a common feature and often associated with an INPH resembling gait			
	<i>125, Jenny Larsson</i>			
16.30 - 16.40	A repeated gait assessment protocol in the cerebrospinal fluid tap test for accurate prediction of effect of a shunt surgery on gait disturbances in idiopathic normal pressure hydrocephalus.			
	<i>135, Suehiro Takashi</i>			
16.40 - 16.50	Vascular Risk Profiles for Predicting short-term Outcome and long-term Mortality in INPH. Comparison of Clinical Decision Support Tools.			
	<i>127, Sanna Eklund</i>			
16.50 - 17.00	Relationships between cerebrospinal fluid biomarkers and the cerebrospinal fluid tap test in idiopathic normal pressure hydrocephalus			
	<i>120, Chunyan Liu</i>			
17.00 - 17.10	Ventricular CSF biomarkers are associated with improvement after shunt surgery in iNPH			
	<i>62, Rebecca Grønning</i>			
17.10 - 17.20	Genome-wide association study in idiopathic normal pressure hydrocephalus			
	<i>52, Joel Räsänen</i>			
17.20 - 17.30	The impact of telesensors on neurosurgical service demand: a cohort cost-effectiveness analysis from institutional and patient perspectives			
	<i>95, Ptolemy D W Banks</i>			
17.30 - 17.40	VIshunt: Towards a smart shunt system for hydrocephalus patients			
	<i>80, Fabian Flürenbrock</i>			
19:00	Meeting Dinner at Universeum			

Sunday, 11 September 2022

Drottningporten 1-2		Drottningporten 3	
07.00 - 07.30	Registrations		
07.30 - 08.00	Industry Sponsored Breakfast Seminar		
08.00 - 09.45	Session 7: Technical Advances in Treatment and Diagnostics		
08.00 - 08.15	Keynote Lecture I: Hydrocephalus Shunts: What is presently not working?		

	Uwe Kehler, Germany		
08.15 - 08.30	Keynote Lecture II: CSF shunts for today and the future?		
	Jan Malm, Sweden		
08.30 - 08.45	Keynote Lecture III: Surgical technical perspectives. How to pay for necessary development? Final title TBA		
	Madoka Nakajima, Japan	08.50 - 09.45	Session 8: Theme Adult hydrocephalus: Advancing knowledge
08.45 - 08.55	Chronic intracranial pressure monitoring for hydrocephalus using the Kitea system; first animal results		
	10, Simon Malpas	08.50 - 09.00	Vascular and morphological choroidal features in patients with idiopathic Normal Pressure Hydrocephalus
08.55 - 09.05	First experience with post-operative transcranial ultrasound through sonolucent burr hole covers in adult hydrocephalus patient		17, Nicola Valsecchi
	141, Michael Meggyesy	09.00 - 09.10	Grading of ventricular reflux of intrathecal tracer – clinical experience utilizing a novel imaging biomarker of altered CSF flow in INPH
09.05 - 09.15	3D printed miniaturized ICP control valve for the treatment of hydrocephalus		113, Per Kristian Eide
	92, Seunghyun Lee	09.10 - 09.20	CSF volumetry of cerebral high-convexity tightness, sylvian fissure and ventricular volume after shunt treatment in idiopathic normal pressure hydrocephalus
09.15 - 09.25	'Watkins': A Walking App For Gait Assessment In Normal Pressure Hydrocephalus And Decompensated Long-Standing Overt Ventriculomegaly Patients		71, Elin Eriksson Hagberg
	68, Kanza Tariq	09.20 - 09.30	Shunt Therapy in Idiopathic Normal Pressure Hydrocephalus: Results from a Long-Term Observation
09.25 - 09.35	Link between cerebral blood flow and cerebrospinal compensatory parameters in NPH		25, Giovanni Grasso
	8, Marek Czosnyka	09.30 - 09.40	Cerebral microbleeds - Long-term outcome after CSF shunting in INPH
09.35 - 09.45	Evaluation of MRI-resistance of the Codman Certas Plus shunt valve in vivo		133, William Hansson
	31, Rafael Holmgren	09.40 - 09.45	Conclusions
09.45 - 10.15	Coffee Break & Exhibition		
10.15 - 12.00	Session 9: Social aspects of Adult Hydrocephalus: Panel Discussion	10.15 - 12.00	Session 10: Pediatric Hydrocephalus
	Chair/Moderator: Johnny Sundin		Chairs: Daniel Nilsson, Magnus Tisell TBA
10.15 - 10.35	Keynote Lecture: Aging and Dementia in the 2020ies	10:15 - 10.25	The NNI paediatric VPS prognostication model for 30-day non-technical shunt failure
	Ingmar Skoog, Sweden		16, Jia Xu Lim
10.35 - 11.00	Introduction to the Panel: Adult Hydrocephalus pros and cons	10.25 - 10.35	A Pilot Study: Pediatric hydrocephalus knowledge assessment among females at a small rural hospital in Sudan.
	Ville Leinonen, Finland		156, Mai Mahmoud
11.00 - 12.00	Round Table Discussion: What must be accomplished and how we should get it done?	10.35 - 10.45	Spontaneous cutaneous rupture secondary to severe congenital hydrocephalus
	Mette Ramel (patient), Sweden		162, Van Battad

	<i>Monica Chau (Hydrocephalus Association), USA</i>	10.45 - 10.55	Transition of hydrocephalus patients from paediatric to adult neurosurgery: a single institution experience
	<i>Mats Tullberg (MD), Sweden</i>		<i>63, Lucia Darie</i>
		10.55 - 11.05	Obstruction as it correlates to etiology, length of implantation time, and revision rate
			<i>163, Carolyn Harris</i>
		11.05 - 11.15	Use of Polyvinylpyrrolidone-Coated Shunt Tubing in the Reduction of Long-term Tubing Calcification
			<i>159, Alvin Chan</i>
		11:15 - 11:35	Keynote Lecture: Fetal surgery for spina bifida and its potential benefits for the fetal brain
			<i>Professor Dr. med. Thomas Kohl, Germany</i>
		11.35 - 11.45	Establishing Ranked Priorities for Future Hydrocephalus Research
			<i>60, Mark Hamilton</i>
		11.45 - 12.00	Conclusions
12.00 - 13.20	Industry Sponsored Lunch Seminar		
13.20 - 15.15	Session 11: Imaging biomarkers in Hydrocephalus - HS/IHIWG Joint Session	13.20 - 15.15	Session 12: CSF Dynamics and ICP: Thematic topic TBA
	Chairs: Ari Blitz, Karin Kockum		Chairs: Jan Malm, Anders Eklund
13.20 - 13.30	Predicting outcome in iNPH through MR perfusion and diffusion (PointMR)	13.20 - 13.40	Keynote I: CSF-infusion tests and the glymphatic system
	<i>20, Doerthe Ziegelitz</i>		<i>Anders Eklund, Sweden</i>
13.30 - 13.40	Radiological evaluation versus infusion test in hydrocephalus patients	13.40- 13.50	Intracranial pressure characteristics in patients with idiopathic intracranial hypertension after shunt implantation
	<i>96, Olivier Balédent</i>		<i>114, Mahmoud Samara</i>
13.40 - 14.00	Keynote I: Variability of Normal Pressure Hydrocephalus Imaging Biomarkers with Respect to Section Plane Angulation: How Wrong a Radiologist Can Be?	13.50 - 14.00	Impact of Transverse Sinus Dominance on Intracranial Pressure
	<i>Keynote I: Jan Zizka, Czech Republic</i>		<i>40, Sogha Khawari</i>
14.00 - 14.10	Recovery from the impact of MRI protocol changes on machine learning methods for MRI-based DESH detection	14.00 - 14.20	Keynote II Title TBA
	<i>82, Jeff Gunter</i>		<i>Jan Malm, Sweden</i>
14.10 - 14.20	Intravoxel Incoherent Motion (IVIM) Magnetic Resonance Imaging (MRI) in Patients affected by probable idiopathic Normal Pressure Hydrocephalus (iNPH)	14.20 - 14.30	Correlation between cerebrospinal fluid opening pressure and body fat distribution in idiopathic intracranial hypertension (IIH) patients
	<i>78, Daniele Bagatto</i>		<i>152, Sara Ho</i>
14.20 - 14.30	3-Dimensional volumetric segmentation of the optic nerve sheath and hypophysis in patients with raised intracranial pressure	14.30 - 14.40	Obesity in female rats does not cause idiopathic intracranial hypertension –are secondary factors required?
	<i>56, Musa China</i>		<i>15, Jonathan Wardman</i>
14.30 - 14.50	Keynote II: Morphological imaging features associated with idiopathic normal pressure hydrocephalus	14.40 - 14.50	Improving diagnostic accuracy with ICP monitoring in patients with ambiguous pressure symptomatology
	<i>David Fällmar, Sweden</i>		<i>139, Michael Meggyesy</i>
14.50 - 15.00	Distinct volumetric features of cerebrospinal fluid distribution in idiopathic normal-pressure hydrocephalus and Alzheimer's disease	14.50 - 15.10	Keynote III Title TBA

	<i>37, Kyunghun Kang</i>			Rigmor Jensen, Denmark
15.00 - 15.10	Radiological signs of iNPH without clinical symptoms-a longitudinal study		15.10 - 15.15	Conclusions
	<i>150, Karin Kockum</i>			
15.10 - 15.15	<i>Conclusions</i>			
15.15 - 15.45	Coffee Break & Exhibition			
15.45 - 17.40	Session 13: Adult Hydrocephalus - Gait and Posture: 3D methods and Machine learning		15.45 - 17.45	Session 14: Pediatric and Adult Hydrocephalus - Posthemorrhagic
	Chair: Mats Tullberg			Ventricular dilatation in infants and other secondary forms of hydrocephalus
15.45 - 15.50	Introduction: Why do we need better methods to quantify gait and posture in iNPH?			Chairs: Daniel Nilsson
15.50-16.00	Towards an automated identification of typical walking patterns in NPH patients using wearable sensors		15.45-16.05	Keynote I: Posthemorrhagic ventricular dilatation in preterm infants – how to reach the largest achievements for the smallest children
	<i>128, Lennart Stieglitz</i>			<i>Karin Sävmán, Sweden</i>
16.00-16.10	Three-dimensional gait analysis with an optical tracking system captures characteristic gait changes in iNPH		16.05 - 16.25	Keynote II: Title TBA
	<i>107, Lena Kollen</i>			<i>David Ley, Sweden</i>
16.10-16.20	Clinical assessment of step-height and width in iNPH using wearable sensors		16.25 - 16.35	CSF Drainage for Acute Hydrocephalus: When Is the Right Time to Wean?
	<i>134, Tomas Bäcklund</i>			<i>100, Joanna Palasz</i>
16.20 - 16.30	In a large population-based study, higher-level gait disorders were associated to low quality of life, symptoms of depression and low falls-efficacy		16.35 - 16.45	Incidence and outcomes of patients with chronic secondary hydrocephalus undergoing VP shunting at a tertiary neurosurgery centre in the UK
	<i>124, Jenny Larsson</i>			<i>94, Sheikh Muktadir Bin Momin</i>
16.30 - 16.50	Keynote I: Inertial measurement units and Machine learning Parkinson's disease gait analysis		16.45 - 16.55	Risk factors for post-traumatic hydrocephalus after decompressive craniectomy
	<i>Tiwana Varrecchia, Italy</i>			<i>34, Sérgio Miguel Fernandes Romualdo</i>
16.50 - 17.10	Keynote II: Machine learning in gait analysis II		16.55 - 17.05	A benchtop simulation trainer for percutaneous shunt tap: model development and evaluation
	<i>Ciprian Crainiceanu, Johns Hopkins, USA</i>			<i>53, Jonathan Funnell</i>
17.10 - 17.20	Keynote III: Gait analysis in iNPH using a mobile device		17.05 - 17.15	Local guidelines for insertion of cerebrospinal fluid shunts reduce revision rate
	<i>Fredrik Lundin, Sweden</i>			<i>122, Sebastian Yim</i>
17.20 - 17.30	Instrumented Timed Up and Go Test in Normal Pressure Hydrocephalus evaluation. Individual-Level modifications after shunt surgery		17.15 - 17.25	What does M.scio Telemetric ICP monitor read when proximal shunt catheter is blocked?
	<i>131, David Miletti</i>			<i>50, Eleanor Moncur</i>
17.30 - 17.40	Objective Assessment of NPH Patients Following Ventriculoperitoneal Shunt Placement Using Activity Monitoring Data		17.25 - 17.35	The Benefits of Automated CSF Drainage in Normal Pressure Hydrocephalus
	<i>7, Benjamin Elder</i>			<i>41, Sogha Khawari</i>

		17.35 - 17.45	Prognostic value of cerebrospinal fluid production rate in haemorrhagic stroke
			66, Kanza Tariq

Monday, 12 September 2022

Drottningporten 1-2		Drottningporten 3	
08.00 - 09.45	Session 15: CSF and blood biomarkers in diagnosis and prognosis of neurodegenerative disease and hydrocephalus Chairs: Henrik Zetterberg, Kaj Blennow	08.00 - 09.45	Session 16: Adult hydrocephalus - symptoms and signs
08.00 - 08.15	The biomarker profile in iNPH <i>Carsten Wikkelso, Sweden</i>	08.00 - 08.10	Experiences of Performance and Participation in Daily Activities in Patients with Idiopathic Normal Pressure Hydrocephalus <i>24, Katarina Owen</i>
08.15 - 08.30	Amyloid, tau, neurodegeneration and glial (ATNG) biomarkers in blood and CSF – prospects for their future clinical use. <i>Kaj Blennow, Sweden</i>	08.10 - 08.20	The Timed Up and Go Test in Idiopathic Normal Pressure Hydrocephalus – a Nationwide Study of 1300 patients <i>104, Nina Sundström</i>
08.30 - 08.45	Synaptic proteins in CSF <i>Nicholas J Ashton, Sweden</i>	08.20 - 08.30	Tinetti POMA in Normal Pressure Hydrocephalus evaluation. Individual-Level modifications after shunt surgery. <i>132, David Miletti</i>
08.45 - 09.00	Blood Phospho-tau to identify early tau pathology <i>Henrik Zetterberg, Sweden</i>	08.30 - 08.40	The paced finger tapping assessment in idiopathic normal pressure hydrocephalus <i>70, Yoko Shimizu</i>
09.00 - 09.10	Idiopathic normal pressure hydrocephalus: preoperative lumbar CSF levels of synaptic biomarkers are lower in shunt responders than in non-responders <i>164, Mats Tullberg</i>	08.40 - 08.50	Prevalence of fecal incontinence in normal pressure hydrocephalus – a prospective evaluation of 100 patients <i>108, Uwe Kehler</i>
09.10 - 09.20	Correlation between CSF NPTX2 and cognitive function, physiology, and biomarkers in idiopathic normal pressure hydrocephalus (iNPH) patients <i>151, Megha Patel</i>	08.50 - 09.00	Bowel and bladder symptoms in idiopathic normal pressure hydrocephalus <i>28, Andreas Eleftheriou</i>
09.20 - 09.30	Time-dependent biomarker level change along with progression of CSF stagnation in idiopathic normal pressure hydrocephalus. <i>36, Kaito Kawamura</i>	09.00 - 09.10	Urinary outcome after shunt placement in patients with Normal Pressure Hydrocephalus and urinary comorbidities: a single center experience <i>89, Fernando Hakim</i>
09.30 - 09.40	The effect of ventriculo-atrial shunt for the iNPH patients with high phosphorylated tau protein in cerebrospinal fluid <i>61, Kiyoshi Takagi</i>	09.10 - 09.20	The Clinical Utility of the MoCA in iNPH assessment <i>143, Abhay Moghekar</i>
09.40 - 09.45	Conclusions	09.20 - 09.30	Implementing advanced psychometrics to identify significant change between cognitive test scores in response to CSF drainage <i>39, Aishah Hannan</i>
		09.30 - 09.40	Dopaminergic function in normal pressure hydrocephalus. A quantitative approach. <i>165, Eric Schmidt</i>
09.45 - 10.15	Coffee Break & Exhibition		
10.15 - 11.30	Session 17: Oral Flash Presentations	10.15 - 11.30	Session 18: Oral Flash Presentations

10.15 - 10.20	Novel Telemetric Pressure Monitoring in Lumbar Theca	10.15 - 10.20	The degenerative state of paraspinal muscle may affects gait improvement after shunt surgery in normal pressure hydrocephalus
	<i>Sogha Khawari</i>		<i>Ki-Su Park</i>
10.20 - 10.25	RESISTANCE TO CEREBROSPINAL FLUID OUTFLOW VERSUS “PSEUDO” INTRACRANIAL COMPLIANCES IN HYDROCEPHALUS PATIENTS	10.20 - 10.25	The demography of iNPH: data on 3000 consecutive, surgically treated patients and a systematic review of the literature
	<i>Olivier Balédent</i>		<i>Nina Sundström</i>
10.25 - 10.30	“PSEUDO” INTRACRANIAL COMPLIANCES IN HYDROCEPHALUS PATIENTS	10.25 - 10.30	Outcomes following Endoscopic Third Ventriculostomy in adults
	<i>Olivier Balédent</i>		<i>Suhaib Abualsaud</i>
10.30 - 10.35	CSF dynamics in Pseudotumour Cerebri: a single-centre observational study	10.30 - 10.35	Psychiatric signs and symptoms in idiopathic normal pressure hydrocephalus (iNPH): a systematic review and meta-analysis
	<i>Afroditi Lalou</i>		<i>Clara Belessiotis-richards</i>
10.35 - 10.40	New sleep apnea diagnosis following elective intracerebral pressure monitoring	10.35 - 10.40	Utility of neuropsychological tests in assessing response to cerebrospinal fluid drainage in idiopathic normal pressure hydrocephalus.
	<i>Michael Meggyesy</i>		<i>Elizabeth Cray</i>
10.40 - 10.45	Non-invasive acquisition of head dielectric properties during tilting	10.40 - 10.45	Ultra-Fast neuropsychological testing before and after tap-test in suspected iNPH patients: preliminary report.
	<i>Andrea Boraschi</i>		<i>Sara Fabbro</i>
10.45 - 10.50	Positional Intracranial Pressure monitoring in patients diagnosed with intracranial hypo- and hypertension	10.45 - 10.50	Distribution of Dopamine transporter accumulation in striatum reflects cognitive function and gait ability of patients with iNPH.
	<i>Michael Meggyesy</i>		<i>Chihiro Kamohara</i>
10.50 - 10.55	What exactly happens to ICP and pulse amplitude when humans stand from sitting position?	10.50 - 10.55	Assessment of cognition and psychological wellbeing in adults with idiopathic normal pressure hydrocephalus (iNPH)
	<i>Eleanor Moncur</i>		<i>Lisa Healy</i>
10.55 - 11.00	Determining the relationship between breathing, biofeedback, attention and intracranial pressure: an experimental pilot study	10.55 - 11.00	Thyroid hormones and health related quality of life in normal pressure hydrocephalus patients
	<i>Anand Pandit</i>		<i>Mindaugas Urbonas</i>
11.00 - 11.05	What exactly happens to ICP and pulse amplitude when humans sit from lying position?	11.00 - 11.05	Caregiver burden development in patients with Normal Pressure Hydrocephalus before and after shunt placement: paradox of improvement
	<i>Eleanor Moncur</i>		<i>Fernando Hakim</i>
11.05 - 11.10	Effect of various head positions on intracranial pressure in humans	11.05 - 11.10	Comparison between cognitive tests in the assessment of idiopathic normal pressure hydrocephalus
	<i>Eleanor Moncur</i>		<i>Katarina Laurell</i>
11.10 - 11.15	Comparison between intracranial compliance noninvasive measurement parameters and tap test results in patients with Normal Pressure Hydrocephalus	11.10 - 11.15	Incidence of idiopathic Normal Pressure Hydrocephalus: a prospective population-based study
	<i>Fernando Pinto</i>		<i>Karin Kockum</i>
11.15 - 11.20	Intracranial and adjacent dynamics during tilting in an acute ovine in-vivo trial	11.15 - 11.20	Standardizing Normal Pressure Hydrocephalus’ diagnosis and its impact on clinical outcomes: a single center experience
	<i>Anthony Podgorsak</i>		<i>Fernando Hakim</i>

11.20 - 11.25	Influences of pressure and resistance of cerebrospinal fluid outflow as the risk factors of secondary normal pressure hydrocephalus <i>Sadahiro Nomura</i>	11.20 - 11.25	Case report: COVID-19 and benign intracranial hypertension <i>Malbora Xhelili</i>
11.25 - 11.30	The utility and reversibility of MRI biomarkers in predicting raised intracranial pressure <i>Musa China</i>	11.25 - 11.30	Development of cognitive symptoms in idiopathic normal pressure hydrocephalus: a longitudinal population-based study <i>Otto Lilja-Lund</i>
11.30 - 12.00	Session 19: Marmarou Lecture		
	Mandala <i>Michael Williams, USA</i>		
12.00 - 13.30	Industry Sponsored Lunch Seminar		
13.30 - 14.30	Session 20: Oral Flash Presentations	13.30 - 14.30	Session 21: Oral Flash Presentations
13.30 - 13.35	Quantification of Cardiac-Related Neural Tissue Motion in Type 1 Chiari Malformation: A Case Control Study Pre- and Post-Spinal Decompression Surgery <i>Gwendolyn Williams</i>	13.30 - 13.35	Ventricular Volume Is More Strongly Associated with Clinical Improvement Than the Evans Index after Shunting in Idiopathic Normal Pressure Hydrocephalus <i>Dan Farahmand</i>
13.35 - 13.40	What are the barriers to delivering timely CSF diversion in patients with NPH? Results of a single-centre service evaluation <i>Shuler Men Xu</i>	13.35 - 13.40	Evaluation of a fully automated method for ventricular volume segmentation before and after shunt surgery in iNPH <i>Doerthe Ziegelitz</i>
13.40 - 13.45	Impact of laparoscopic insertion of distal catheter of ventriculoperitoneal shunts on revision rates <i>Sebastian Yim</i>	13.40 - 13.45	Investigation of cerebrospinal fluid volumes to evaluate Probable idiopathic normal pressure hydrocephalus <i>Hongliang Li</i>
13.45 - 13.50	Cerebrospinal fluid closing pressure-guided tap test for the diagnosis of idiopathic Normal Pressure Hydrocephalus <i>Fernando Hakim</i>	13.45 - 13.50	Boosting phase contrast MRI performance in iNPH diagnostics by means of machine learning <i>Adela Bubenikova</i>
13.50 - 13.55	Management of a shunt dysfunction case using non-invasive ICP waveform monitoring <i>Raphael Bertani</i>	13.50 - 13.55	Diagnostic Value Of Cerebrospinal Fluid Production Rate In Normal Pressure Hydrocephalus <i>Kanza Tariq</i>
13.55 - 14.00	Successful early treatment for hydrocephalus due to aqueduct stenosis in a young patient <i>Michiko Yokosawa</i>	13.55 - 14.00	Cerebral Spinal Fluid Biomarkers for Diagnosis, Surgical Outcome Prediction and Stratification of Idiopathic Normal Pressure Hydrocephalus Affected Patients: A Systematic Review <i>Giovanni Grasso</i>
14.00 - 14.05	How I do it: insertion of ventriculo-thecal shunt <i>Lucia Darie</i>	14.00 - 14.05	Involvement of Aquaporin-1 in brain water homeostasis <i>Dennis Bo Jensen</i>
14.05 - 14.10	Multi-Objective Framework for Ventricular Shunt Catheter Design <i>Quentin Aten</i>	14.05 - 14.10	Lysophosphatidic acid as a CSF lipid in posthemorrhagic hydrocephalus that drives CSF accumulation via TRPV4-induced hyperactivation of NKCC1 <i>Trine Toft</i>
14.10 - 14.15	'Watkins' Point and trajectory': description of a new method to guide freehand ventricular catheter insertion <i>Kanza Tariq</i>	14.10 - 14.15	Diagnostic Accuracy of Thermal Transcutaneous Flow compared with Radionuclide Shunt Patency Study to detect Shunt Obstruction in Adults with Normal Pressure Hydrocephalus-A Cross Sectional Analytic Study <i>Naomi Abel</i>

14.15 - 14.20	Incidence of complications due to overdrainage in Normal Pressure Hydrocephalus and a new method to adjust the valve based on intracranial pressure <i>Fernando Hakim</i>	14.15 - 14.20	The Development and Testing of an Efficient Benchtop Testbed for the Quantitative Analysis of Gross Obstruction in Ventricular Catheters <i>Carolyn Harris</i>
14.20 - 14.25	Preauricular tunneling in ventriculo-peritoneal (VP) shunt: is it a useful alternative? <i>Patricia Barrio</i>	14.20 - 14.25	A High-Throughput Assay for Screening Material-Mediated Cellular Adhesion for Neurological Implants <i>Tanzil Islam</i>
14.25 - 14.30	Rescue treatment of biloculated and isolated fourth ventricle. <i>Borja Sanz Peña</i>	14.25 - 14.30	Finite state machine for position dependent hydrocephalus shunt therapy <i>David Iselin</i>
14.30 - 14.40	Short Break		
14.40 - 16.25	Session 22: Frontiers in Hydrocephalus Neuroimaging: The Glymphatic system - HS/IHIWG Joint Session Chairs: Ari Blitz, Karin Kockum	14.40 - 16.15	Session 23: Pediatric HC: Children and adolescents with surgically treated hydrocephalus in infancy – visual and ocular outcome. Chairs: Daniel Nilsson, Gothenburg
14.40 - 15.00	Keynote I: The perivascular pathway for CSF-ISF exchange <i>Jeffrey J Iliff, USA</i>	14.40 - 14.45	Introduction <i>Marita Andersson Grönlund, Sweden</i>
15.00 - 15.10	Diffusion tensor image analysis along the perivascular space (DTI-ALPS) reflects impaired activity of the glymphatic system in iNPH. <i>38, Charalampos Georgiopoulos</i>	14.45 - 15.00	Visual function and visual perceptual problems in children and adolescents – a long-term follow-up <i>Susann Andersson</i>
15.10 - 15.20	Importance of Oscillating Flow of Cerebrospinal Fluid in idiopathic Normal Pressure Hydrocephalus <i>18, Shigeki Yamada</i>	15.00 - 15.12	Ocular motility and fixation <i>Eva Aring, Sweden</i>
15.20 - 15.30	CSF FLOWS DYNAMICS VERSUS MORPHOLOGICAL AND PRESSURE-RELATED PARAMETERS CONSIDERED IN NPH PATIENTS <i>98, Olivier Balédent</i>	15.12 - 15.25	Reduced retinal nerve fibre layer in adolescents with hydrocephalus <i>Marita Andersson Grönlund, Sweden</i>
15.30 - 15.40	Automated quantification of lateral ventricle volumes in normal pressure hydrocephalus from computed tomography scans using deep learning <i>142, Meera Srikrishna</i>	15.25 - 15.40	Cerebral visual impairment – impact on everyday life <i>Barbro Lindquist, Sweden</i>
15.40 - 15.50	Deep-learning cortical thickness analysis as a predictor for shunt surgery effectiveness in possible iNPH patients: a preliminary study <i>144, Daniele Piccolo</i>	15.40 - 15.50	Etiology and visual function - a comparison study of two different populations with surgically treated hydrocephalus in infancy <i>65, Farah Mastrouk</i>
15.50 - 16.00	Association of aqueductal flow and DESH features in a population-based study <i>75, Petrice Cogswell</i>	15.50 - 16.00	Vision and health-related quality of life in adolescents with surgically treated hydrocephalus in infancy <i>57, Rezhna Taha Najim</i>
16.00 - 16.20	Keynote Lecture II "MRI of the human Glymphatic system" Geir Ringstad, Norway	16.00 - 16.15	Discussion, conclusions
16.20 - 16.25	Conclusions		
16.25 - 16.55	Closing Session: Highlights from Hydrocephalus 2022. Welcome to Hydrocephalus 2023, Hamburg Chairs: Uwe Kehler, Mats Tullberg		
16.25 - 16.40	Highlights from Hydrocephalus 2022 <i>Neil Graff-Radford, USA</i>		
16.40 - 16.55	Closing Remarks. Welcome to Hamburg.		

Mats Tullberg, *President of Hydrocephalus 2022*
 Uwe Kehler, *President of Hydrocephalus Society and President of Hydrocephalus 2023*

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Marek Czosnyka

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Lucia Darie

Longstanding overt ventriculomegaly in adults (LOVA): open versus closed aqueduct subgroup characteristics

Lucia Darie

A rare case report including hydatid cyst of the Aqueduct of Sylvius and a Chiari malformation

Slim Gallaoui

Trigeminal neuralgia and normal pressure hydrocephalus: a rare association. Case report and review of the literature.

Fernando Hakim

Intrauterine Spontaneous Subdural Hematoma with Hydrocephalus

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Combined Endoscopic Third Ventriculostomy and Lumboperitoneal Shunt Surgery in the Elderly Patient with Complex Hydrocephalus: a Mixture of Late-onset obstructive hydrocephalus and Communicating Hydrocephalus

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Transversus abdominis plane block for lumboperitoneal shunt surgery in idiopathic normal pressure hydrocephalus: a case report

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Dopaminergic function in normal pressure hydrocephalus. A quantitative approach.

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Postoperative Valve Pressure Adjustment for a Long-Term Success Following Shunt in Idiopathic Normal Pressure Hydrocephalus

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Andreas Zigouris