

11. Handler MH, Callahan B. Laparoscopic placement of distal ventriculoperitoneal shunt catheters. *J Neurosurg Pediatr.* 2008;2:282–5.
12. Naftel RP, Argo JL, Shannon CN, et al. Laparoscopic versus open insertion of the peritoneal catheter in ventriculoperitoneal shunt placement: review of 810 consecutive cases. *J Neurosurg.* 2011;115:151–8.
13. Roth J, Sagie B, Szold A, Elran H. Laparoscopic versus non-laparoscopic-assisted ventriculoperitoneal shunt placement in adults. A retrospective analysis. *Surg Neurol.* 2007;68:177–85.
14. Pettersson D, Schmitz KR, Jeffrey M, et al. Medulloblastoma: seeding of VP shunt tract and peritoneum. *Clin Pract.* 2012;2:e37.
15. Jennett B, Bond M. Assessment of outcome after severe brain damage. *Lancet.* 1975;7905:480–4.
16. Culley DJ, Berger MS, Shaw D, et al. An analysis of factors determining the need for ventriculoperitoneal shunts after posterior fossa tumor surgery in children. *Neurosurgery.* 1994;34:402–7 [discussion 407–8].
17. Riva-Cambrin J, Detsky AS, Lamberti-Pasculli M, et al. Predicting postresection hydrocephalus in pediatric patients with posterior fossa tumors. *J Neurosurg Pediatr.* 2009;3:378–85.
18. Albright L, Reigel DH. Management of hydrocephalus secondary to posterior fossa tumors. *J Neurosurg.* 1977;46:52–5.
19. Raimondi AJ, Tomita T. Hydrocephalus and infratentorial tumors. Incidence, clinical picture and treatment. *J Neurosurg.* 1981;55:174–82.
20. Hekmatpanah J, Mullan S. Ventriculo-caval shunt in the management of posterior fossa tumors. *J Neurosurg.* 1967;26:609–13.
21. Schneider C, Ramaswamy V, Kulkarni AV, et al. Clinical implication of medulloblastoma subgroups: incidence of CSF diversion surgery. *J Neurosurg Pediatr.* 2014;1–7.
22. Foreman P, McClugage S, Naftel R, et al. Validation and modification of a predictive model of postresection hydrocephalus in pediatric patients with posterior fossa tumors. *J Neurosurg Pediatr.* 2013;12:220–6.
23. Morelli D, Pirotte B, Lubansu A, et al. Persistent hydrocephalus after early surgical management of posterior fossa tumors in children: is routine preoperative endoscopic third ventriculostomy justified? *J Neurosurg.* 2005;103:247–52.
24. Gnanalingham KK, Lafuente J, Thompson D, et al. The natural history of ventriculomegaly and tonsillar herniation in children with posterior fossa tumours—an MRI study. *Pediatr Neurosurg.* 2003;39:246–53.
25. Sainte-Rose C, Cinalli G, Roux FE, et al. Management of hydrocephalus in pediatric patients with posterior fossa tumors: the role of endoscopic third ventriculostomy. *J Neurosurg.* 2001;95:791–7.
26. Tamburrini G, Pettorini BL, Massimi L, et al. Endoscopic third ventriculostomy: the best option in the treatment of persistent hydrocephalus after posterior cranial fossa tumour removal? *Childs Nerv Syst.* 2008;24:1405–12.
27. Tuli S, Tuli J, Drake J, et al. Predictors of death in pediatric patients requiring cerebrospinal fluid shunts. *J Neurosurg.* 2004;100:442–6.
28. Drake JM, Kestle JRW, Milner R, et al. Randomized trial of cerebrospinal fluid shunt valve design in pediatric hydrocephalus. *Neurosurgery.* 1998;43:294.
29. Cochrane DD, Kestle JRW. The influence of surgical operative experience on the duration of first ventriculoperitoneal shunt function and infection. *Pediatr Neurosurg.* 2003;38:295–301.
30. McLaurin RL. Disadvantages of the preoperative shunt in posterior fossa tumors. *Clin Neurosurg.* 1983;30:286–92.
31. Taylor WA, Todd NV, Leighton SE. CSF drainage in patients with posterior fossa tumours. *Acta Neurochir (Wien).* 1992;117:1–6.
32. Di Rocco F, Juca CE, Zerah M, et al. Endoscopic third ventriculostomy and posterior fossa tumors. *WNEU.* 2013;79:S18.e15–9.
33. Bouras T, Sgouros S. Complications of endoscopic third ventriculostomy. *J Neurosurg Pediatr.* 2011;7:643–9.
34. Kulkarni AV, Drake JM, Mallucci CL, et al. Endoscopic third ventriculostomy in the treatment of childhood hydrocephalus. *J Pediatr.* 2009;155:254–9.
35. Drake JM. Canadian Pediatric Neurosurgery Study Group. Endoscopic third ventriculostomy in pediatric patients: the Canadian experience. *Neurosurgery.* 2007;60:881–6.

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## PS009

### Percutaneous cholecystostomy in the management of acute cholecystitis

Sara Gomes-Rodrigues<sup>1,\*</sup>, Telma Vale-Fonseca<sup>1,2</sup>, Rui Mendes Costa<sup>1,2</sup>

<sup>1</sup> Faculty of Medicine of University of Porto, Porto, Portugal

<sup>2</sup> Department of General Surgery. Hospital of São João, Porto, Portugal

E-mail address: [sara.gomes.rodrigues@gmail.com](mailto:sara.gomes.rodrigues@gmail.com) (S. Gomes-Rodrigues).



**Aim:** The aim of this study is to clarify the role of percutaneous cholecystostomy in calculous acute cholecystitis treatment and to elucidate about its association with the surgical treatment.

**Introduction:** Laparoscopic cholecystectomy is the gold-standard treatment in acute cholecystitis. However, percutaneous cholecystostomy stands as an alternative therapeutic approach among the elderly or patients with several comorbidities.

**Methods:** In December 2016, a systematic database search on PubMed, Scopus and Web of Science was conducted to identify articles on percutaneous cholecystostomy published from January 2013 to November 2016, using the query “(acute cholecystitis OR severe cholecystitis) AND (cholecystostomy OR percutaneous cholecystostomy OR cholecystostomy tube)”. In total, 290 articles were found and submitted to inclusion and exclusion criteria.

**Results:** A total of 13 records involving 1130 patients from 10 different countries met all inclusion criteria and were therefore included in this systematic review. All studies found eligible concluded percutaneous cholecystostomy is a potentially safe and effective therapeutic approach among high-risk surgical patients in the setting of acute cholecystitis. Percentage of patients undergoing percutaneous cholecystostomy followed by cholecystectomy varied between 7.2% and a maximum of 66.7%, with a conversion rate fluctuating between 0.0% and 66.7%. Complication and mortality rates ranged from 2.2% to 41.7% and 0.0% and 43.2%, respectively.

**Conclusion:** Percutaneous cholecystostomy is generally considered safe and effective among high-risk surgical patients diagnosed with acute cholecystitis.<sup>1,2</sup>

## References

1. Popowicz A, Lundell L, Gerber P, et al. Cholecystostomy as bridge to surgery and as definitive treatment or acute cholecystectomy in patients with acute cholecystitis. *Gastroenterol Res Pract.* 2016;2016.
2. Jung W, Park D. Timing of cholecystectomy after percutaneous cholecystostomy for acute cholecystitis. *Korean J Gastroenterol.* 2015;66:209–14.

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## PS092

### The influence of maternal age and parity on perinatal outcomes – A preliminary study

B. Adrianowicz

Perinatology Students' Scientific Group, Department of Obstetrics and Perinatology, Jagiellonian University Medical College, Poland  
E-mail address: [beaadrr@gmail.com](mailto:beaadrr@gmail.com).



**Aim:** The aim of the study was to compare maternal, perinatal and neonatal outcomes depending on maternal age and parity.

**Introduction:** Advanced maternal age at childbirth has been associated with adverse perinatal and neonatal outcomes. As mean maternal age in developed countries is increasing decade by decade, the issue of perinatal outcomes among older patients seems to be of utmost importance.

**Methods:** It is a preliminary study that enrolled 243 women who gave birth in the Department of Obstetrics and Perinatology of the University Hospital in Kraków, Poland, during a one-month period (in May 2017). The patients were divided into 2 groups: >30 and ≤30 years old. The two groups were subsequently subdivided into 4 subgroups. Maternal, perinatal and neonatal outcomes were compared between all the subgroups.

**Results:** Comparison of women at age >30 and ≤30 revealed that advanced maternal age may constitute a predisposing factor for stillbirth, preterm delivery and congenital disorders. At the same time, the patients in the first group were at lower risk of SGA (small for gestational age) and LGA (large for gestational age)