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| **Glucose, Body Fluid** |
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| **CSF Glucose** |
| Clinical Indications | Supportive information for the differentiation of bacterial, fungal, and viral CNS infection |
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| Reference Interval and/or Interpretive Information | CSF [1] | mg/dL |
| Infant, Child | 60 - 80 |
| Adult | 40 - 70 |
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| References | [1] Burtis CA, Ashwood ER, Bruns DE, editors. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics, 5th ed. St. Louis, MO: Elsevier Saunders; 2012:2149 |
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| **Pericardial Fluid Glucose** |
| Clinical Indications | Supportive evidence for differentiation of exudates and transudates |
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| Reference Interval and/or Interpretive Information | As supportive information for differentiating exudates from transudates, one study demonstrated that a pericardial fluid-to-serum glucose ratio of <1.0 had a sensitivity of 85%, although a specificity of only 12%. [1] |
| Pericardial fluid-to-serum glucose ratios were also low in culture-positive effusions. [1] |
| In a study of 30 patients undergoing elective open heart surgery (without evidence of pericardial disease), the “normal” pericardial fluid mean glucose concentration was 133 mg/dL (99% confidence interval, 106-159 mg/dL). [2] |
| This was also expressed as a “normal” mean fluid-to-serum glucose ratio of 1.0 (99% confidence interval, 0.8-1.2). [2] |
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| References | [1] Meyers DG, Meyers RE, Prendergast TW. 1997. The usefulness of diagnostic tests on pericardial fluid. Chest. 111(5):1213-21. |
| [2] Ben-Horin S, Shinfeld A, Kachel E, Chetrit A, Livneh A. 2005. The composition of normal pericardial fluid and its implications for diagnosing pericardial effusions. The American Journal of Medicine. 118:636-640. |
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| **Peritoneal/​Ascites Fluid Glucose** |
| Clinical Indications | Evaluation of peritonitis and/or gut perforation |
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| Reference Interval and/or Interpretive Information | Normal ascitic fluid glucose is similar to serum concentrations. [1] |
| Some reports have noted no statistical differences in glucose between sterile peritoneal fluid and ascitic fluid from spontaneous bacterial peritonitis. [2,3] |
| Specimens from patients with gut perforation (secondary bacterial peritonitis) did, however, have lower glucose concentrations. [2] |
| Other reports have noted decreased ascitic fluid-to-serum glucose ratios in spontaneous bacterial peritonitis. [4] |
| While ascites fluid glucose is generally considered as “unimportant” [2] and/or “not helpful” [5] in the work-up of peritoneal effusions, it is listed as an “optional” laboratory test (when there is suspicion of infection) in the American Association for the Study of Liver Disease practice guideline, Management of Adult Patients with Ascites Due to Cirrhosis (Update 2012). [6] |
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| References | [1] Burgess LJ. 2004. Biochemical analysis of pleural, peritoneal, and pericardial effusions. Clin Chim Acta. 343:61-84. |
| [2] Runyon BA, Hoefs JC. 1984. Ascitic fluid analysis in the differentiation of spontaneous bacterial peritonitis from gastrointestinal tract perforation into ascitic fluid. Hepatology. 4(3):447-450. |
| [3] Runyon BA, Hoefs JC. 1985. Ascitic fluid chemical analysis before, during and after spontaneous bacterial peritonitis. Hepatology. 5(2):257-9. |
| [4] Lee HH, Carlson RW, Bull DM. 1987. Early diagnosis of spontaneous bacterial peritonitis: values of ascitic fluid variables. Infection. 15(4):232-6. |
| [5] Kjeldsberg CR, Straseski JA, Couturier MR, Cohen MB. Chapter 6: Peritoneal fluid. In Kjeldsberg’s Body Fluid Analysis. Hussong JW and Kjeldsberg CR, Eds. ASCP Press: Chicago, IL, 2015. ISBN: 978-089189-5824. |
| [6] Runyon BA. 2012. Practice Guideline. Management of Adult Patients with Ascites Due to Cirrhosis: Update 2012. American Association for the Study of Liver Diseases. |
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| **Pleural Fluid Glucose** |
| Clinical Indications | Evaluation of pleural effusions |
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| Reference Interval and/or Interpretive Information | Normal pleural fluid glucose is similar to serum concentrations. [1] |
| Pleural fluid transudates and most exudates usually have glucose concentrations of >60 mg/dL. [2] |
| Pleural fluid exudates with glucose concentrations <60 mg/dL have been associated with conditions such as parapneumonic effusion, tuberculosis, malignancy, empyema, and/or rheumatoid disease. [1,2,3,4] |
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| References | [1] Hooper C, Lee YCG, Maskell N, on behalf of the BTS Pleural Guideline Group. 2010. Investigation of a unilateral pleural effusion in adults: British Thoracic Society pleural disease guideline 2010. Thorax. 65(Suppl 2):ii4-ii17.  |
| [2] Kjeldsberg CR, Grenache DG, Couturier MR, Cohen MB. Chapter 5: Pleural and pericardial fluid. In Kjeldsberg’s Body Fluid Analysis. Hussong JW and Kjeldsberg CR, Eds. ASCP Press: Chicago, IL, 2015. ISBN: 978-089189-5824. |
| [3] Burgess LJ. 2004. Biochemical analysis of pleural, peritoneal, and pericardial effusions. Clin Chim Acta. 343:61-84.  |
| [4] Sahn SA. Getting the most from pleural fluid analysis. 2012. Respirology. 17: 270-277 |
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| **Synovial Fluid Glucose** |
| Clinical Indications | Evaluation of joint inflammation and/or septic arthritis |
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| Reference Interval and/or Interpretive Information | Normal synovial fluid glucose concentrations are similar to corresponding serum (within ~10 mg/dL of a corresponding fasting serum concentration when the fluid was obtained at a 6-8 hr postprandial time point) [1], or approximately one half of corresponding non-fasting serum glucose. [2] |
| Low synovial fluid glucose has been associated with joint inflammation and/or septic arthritis. [1,2,3] |
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| References | [1] Couturier MR, Straseski JA, Kjeldsberg CR. Chapter 7: Synovial fluid. In Kjeldsberg’s Body Fluid Analysis. Hussong JW and Kjeldsberg CR, Eds. ASCP Press: Chicago, IL, 2015. ISBN: 978-089189-5824. |
| [2] Block DR, Franke DDH. Quick Guide to Body Fluid Testing. AACC Press (Washington, DC), 2015. ISBN 978-1-59425-180-1. |
| [3] Margaretten ME, Kohlwes J, Moore D, Bent S. 2007. Does this adult patient have septic arthritis? JAMA. 297(13):1478-1488.  |
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| **Urine, Glucose** |  |
| Random (mg/dL) | 1 - 15 |
| 24 h (mg/ 24 h) | <500 |
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| https://www.aruplab.com/bodyfluids |