

Single transducer technique: A novel and cost effective approach

Sir,

Invasive hemodynamic monitoring including arterial blood pressure (IABP) and central venous pressure (CVP) are indicated in various perioperative procedures and are considered to be standard patient care.^{1,2} The need for various transducers can add the total cost of equipment set up. In addition, there is an inadequate supply of many types of equipment including transducers especially in developing countries. Therefore, we highlighted our method of use of single transducer technique for monitoring IABP and CVP.

In various oncological procedures, invasive arterial and CVP monitoring is indicated in view of prolonged duration of surgery and anaesthesia, changes in fluid and electrolytes, frequent sampling for arterial blood gases and need for postoperative elective ventilation. In such group of patients, intermittent CVP monitoring with continuous IABP monitoring is feasible without compromising patient safety; hence, we started to use a modified single pressure transducer for monitoring of both IABP and CVP. For single transducer technique [Figure 1], a three way stop cock is attached to the pressure transducer, one end of three way stop cock is attached to the pressure monitoring line of IABP and other end is attached to monitoring line of CVP with help of luer lock connector. Monitoring line of CVP is extension tubing with three way stop cock, one end which is attached to transducer through luer lock connector and other with intravenous fluid for continuous infusion. By rotating the stop cock of three ways to stop position to IABP pressure line, monitoring of CVP is carried out and vice versa. We can also continue intravenous fluid infusion by turning stop cock of CVP monitoring line. So, by this technique; it is possible to monitor IABP and CVP as and when required as per the need. Since accuracy and quality of waveform is independent of pressure transducer position and position of monitoring lines attached, therefore in this technique, we do not anticipate any difference in the measurement of IABP and CVP in comparison to double transducer technique.³ The advantage of this technique is its cost effectiveness and it is easy to use as well. One can save up to \$5,000-6,000/year (considering the cost of each pressure transducer [\$15-20] and number of cases undergoing surgeries 325 approximately in our centre). However, the limitation of our technique is

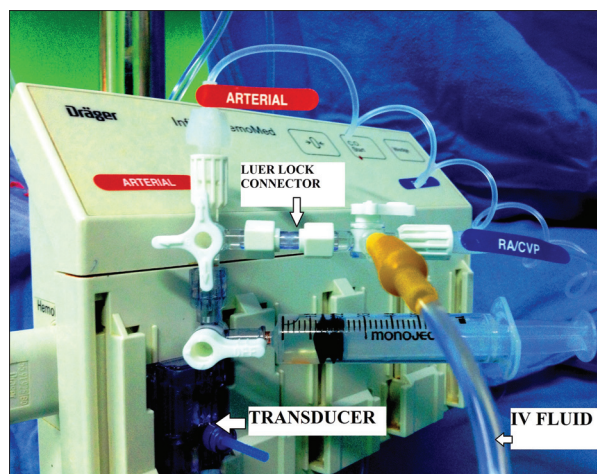


Figure 1: Single pressure transducer with luer lock system

non-availability of continuous monitoring of CVP, which sometimes require in cases of major blood loss/fluid shifts.

In conclusion, one can use the modified single transducer technique for the cases in which intermittent monitoring of CVP with continuous monitoring of IABP is acceptable and it is cost effective too.

Sachidanand Jee Bharati, Tumul Chowdhury¹

Department of Anesthesia, Dr. B.R.A Institute-Rotary Cancer Hospital, All India Institute of Medical Science, New Delhi, India,
¹Department of Anesthesia and Perioperative Medicine, Health Sciences Center, University of Manitoba, Winnipeg, Canada

Address for correspondence:

Dr. Tumul Chowdhury,
Department of Anaesthesia and Perioperative Medicine, 2nd Floor,
Hery Medovy House, 671, William's Ave, Health Sciences Center,
University of Manitoba, Winnipeg, Canada R3E 0Z2.
E-mail: tumulthunder@gmail.com

REFERENCES

1. Buchbinder N, Ganz W. Hemodynamic monitoring: Invasive techniques. *Anesthesiology* 1976;45:146-55.
2. Tuchsmidt J, Sharma OP. Impact of hemodynamic monitoring in a medical intensive care unit. *Crit Care Med* 1987;15:840-3.
3. Sokhal N, Dube SK, Rath GP, Marda MK. Positioning pressure transducers: Upright or upside down? *Ann Card Anaesth* 2011;14:66.

Access this article online

Quick Response Code:



Website:

www.nigeriamedj.com

DOI:

10.4103/0300-1652.119660