

# The Effectiveness of Condoms in Accommodating Infus NaCl Liquid in The Catheter Condom

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## ABSTRACT

**Background:** SDGs' global target is to reduce the Maternal Mortality Rate (MMR) to 70 per 100,000 live births. The main factors causing MMR are bleeding at 28%, hypertension in pregnancy at 24%, and infection at 11%, respectively. MMR is one of the indicators to see the public health status. If with massage and bimanual compression of uterine contractions is still soft and the bleeding is still going on, balloon tampons should be installed.

**Aim:** This study aims to determine the effectiveness of condoms in accommodating NaCl liquid infusion in catheter condoms.

**Method:** The type applied comparative research, and the research location was at Laboratory of Universitas 'Aisyiyah Yogyakarta. The sample numbers were 18 condoms. In this study, the sampling technique applied a simple random sampling method and applied for benefit in condom selection, so the researcher did not directly assess the condoms before conducting research. Condoms to be used were provided by the other party who was not involved in the research. The instrument used a checklist of condom strength and condom adaptability. Condoms were placed at the same height, flat, hard, and condoms were placed on absorbent paper.

**Results:** All condoms A, B, and C had the same strength with a 100% percentage value. Analysis of condom adaptation ability used Kruskal Wallis obtained  $p < 0.01$ .

**Conclusion:** It is recommended to use a condom which is a soft and thin texture for postpartum bleeding handling.

**Keywords:** Bleeding, Catheter, Condom, Effectiveness, Postpartum

## INTRODUCTION

Postpartum hemorrhage during 24 hours postpartum period is really needed appropriate management related to the cause of bleeding. The causes of postpartum hemorrhage are atonia uterine, retencio placenta, genital laceration, uterine inversion, and abnormal coagulation [1].

According to previous research by Georgiou balloon tampon is recommended to use in order to manage postpartum cases [2]. However, the balloon tampon cost is very high and needs a long time for the booking process. The balloon tampon cost is around \$ 250 for Bakri, \$ 200 BT-CATH, \$220 for two pieces of Sengstaken-Blackmore, and \$ 77 for Rush Hydrostatic. Moreover, the health care provider has to pass the training process before using those instruments [3].

Regarding the balloon tampon cost, which is very high, in 2003, Profesor Sayeba Achter built an alternative tampon using a catheter and condom. He modified a condom connected with a catheter to push the uterine's blood vessel and help the uterine have an adequate contraction. Catheter condom used to manage postpartum hemorrhage because of atonia uterine before referral process to the hospital. The condom filled NaCl liquid between 500 and 1500 mL or until the liquid cannot enter the condom. Furthermore, the health care provider has to observe the hemorrhage, and condom accommodation of the liquid had to stop regarding the hemorrhage decrease [4].

## METHOD

This study was conducted to compare the effectiveness of condoms in accommodating infuse NaCl liquid in the catheter condom. Eighteen condoms choose by simple

random sampling technique. The catheter condoms were implemented in uterine phantom and conducted at the skill laboratory of Aisyiyah Yogyakarta University. Then, a checklist was developed as an instrument in the study. Condoms are put on absorbent paper to observe the condition of condoms.

## RESULT AND DISCUSSION

Condoms in this study are divided into three groups that are condom A, B, and C. Condom A made from natural latex, thick and soft. Condom B is made from natural latex, transparent, sleeper, flavorful, and jagged. However, condom A is thinner than condom B. Moreover condom C transparent, flavorful, jagged, and thickest than other condoms.

Table 1. The value of condoms in accommodating NaCl liquid in every group

Condom	Total number	Median. (Max-Min)	Std. Deviation	<i>p</i>	Average
Condom A	6	5.25 (5.28-5.23)	.01751	0.01	3.50
Condom B	6	6.38 (6.43-6.32)	.04147		9.50
Condom C	6	8.08 (8.13-8.01)	.05317		15.50

The table shows that the majority of condoms adjust the shape of the uterine. The fastest condom is condom A with an average of around 3 minutes 50 seconds.

Table 2. The effectiveness of condoms in accommodating

	Condom	f	Mean Rank (minute)	Median (minute)
Time to adaptation	A	6	3.5	5.25
	B	6	9.5	6.38
	C	6	15.5	8.08

**NaCl liquid in condom catheter:** Table 2 shows that all (100%) condoms had the power to accommodate the liquid. Condom A had the lowest time to adaptation (mean=3.5) with a median of 5 minutes 25 seconds.

The data was in a normal distribution ( $p=0.00$ ). The analysis data shows that all condoms in groups A, B, and C had the same power to accommodate NaCl liquid ( $p<0.05$ ). Lyon explains that the requirement for a condom must fulfill an electrolyte test or needle hole test. In this study, all condoms electrolyte tested by giving 1500 cc NaCl liquid. All condoms in this study can accommodate the infused liquid until 1500 cc, with no needle hole and no brake [5].

The condom that is tied up with infuses transfusion can expand the uterine from the inside part of the uterine. After condoms tied up with the infuse transfusion, NaCl liquid streamed into the condom. Further, the condom will expand inside the uterine and help to compress the blood vessel. A previous study conducted in Malaysia gives information that catheter condom to manage postpartum hemorrhage is more than 80% [4].

The Kruskal-Wallis test result explains that condom A, B, and C in this study had differences to adapt the uterine's shape ( $p=0.01$ ). The mean rank and median of the time for adaptation with the uterine's shape between 3 kinds of condoms in this study were varied. The lowest mean rank is condom A (3.5 minutes), with a median of 5 minutes 26 seconds. Furthermore, the highest mean rank is condom C, which has a mean rank of 15.5 minutes and a median of 8 minutes 8 seconds.

The condom used in this study shows that condom A had a shorter time to adaptation process with the shape of uterine compared with condom B and C. Condoms A is a 100% fulfilled electrolyte test, soft, thin, and only need 5 minutes and 28 seconds to adapt to the uterine's shape. It means that condom A can give faster pressure to the blood vessel inside the uterine. The pressure by catheter condom will stimulate uterine muscles to have a uterine contraction, and the postpartum hemorrhage can be solved [6].

**Research Ethic:** The study passed the Aisyiyah Yogyakarta University Ethical Research Committee's

ethical clearance with letter number 10/KEP-UNISA/Exe.I/2018.

## CONCLUSION

A catheter condom is appropriate to use as an alternative method to manage postpartum hemorrhage caused by atonia uterine as long as the condom is in proper condition. The condom can accommodate NaCl liquid until 1500 cc. The different times to adapt to the uterine's shape suggest us to use a soft condom and bend so that the time for a condom to adapt to the shape of the uterine is going faster. Furthermore, a catheter condom can pressure the blood vessel and stimulate the uterine muscle to produce an adequate contraction.

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