



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ





شبكة المعلومات الجامعية



شبكة المعلومات الجامعية

التوثيق الالكتروني والميكرو فيلم

جامعة عين شمس

التوثيق الالكتروني والميكرو فيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون أية تغيرات



يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %



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بعض الوثائق الأصلية تالفة



شبكة المعلومات الجامعية



بالرسالة صفحات
لم ترد بالأصل

**Safety and Efficacy of Repetitive High-Pressure Alveolar
Recruitment Maneuvers in the Management of Critically-Ill
Patients with Acute Respiratory Distress Syndrome**

Thesis

**Submitted For Partial Fulfillment of M.D. Degree
in Anesthesiology**

By

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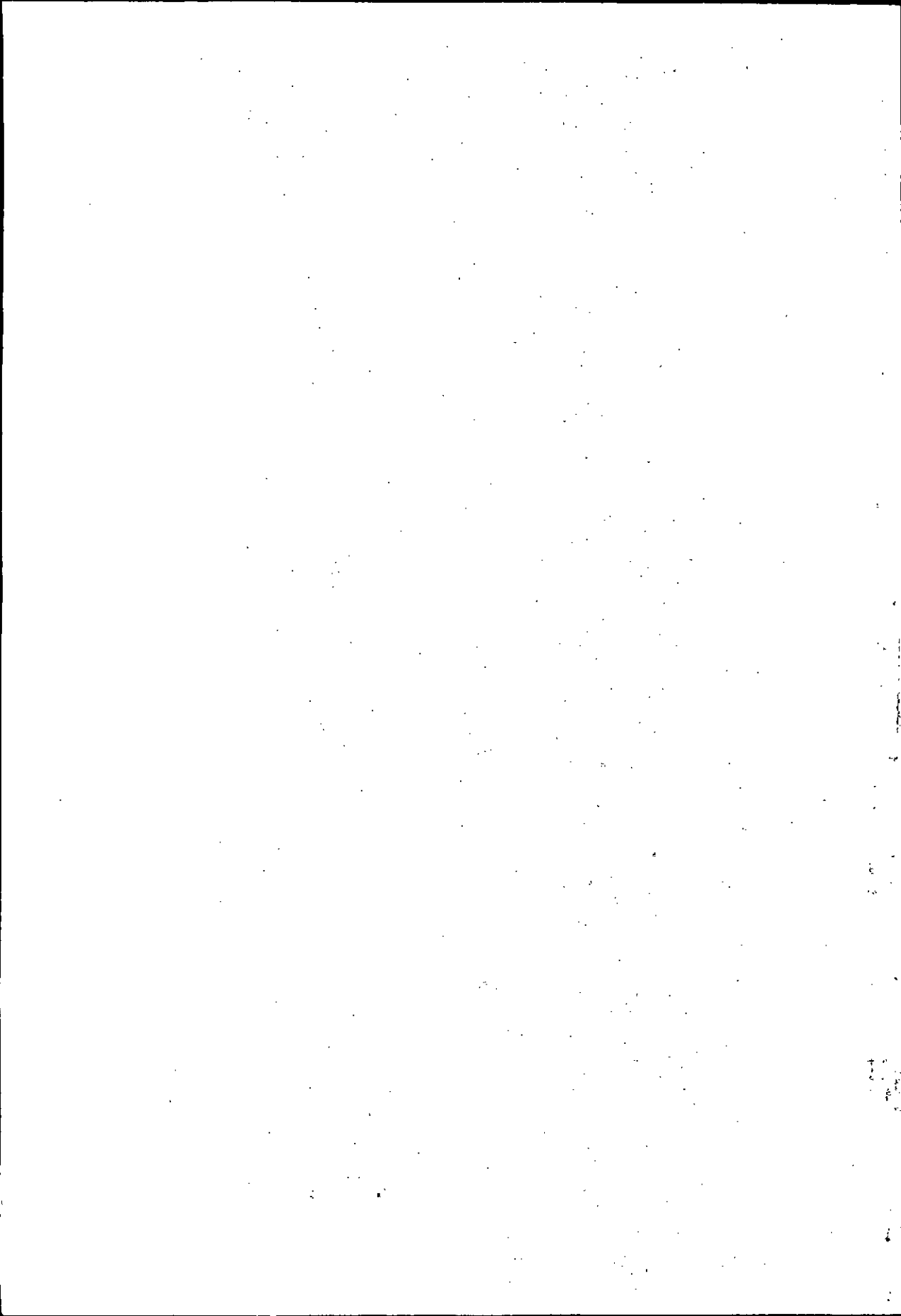
**Assistant Professor of Anesthesiology
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Faculty of Medicine

Cairo university

2005

BVC-C



جامعة القاهرة / كلية الطب
الدراسات العليا

محضر

اجتماع لجنة الحكم على الرسالة المقدمة من
الطبيب / جورج اسحق لوزا عبد الملك
توطئة للحصول على درجة الماجستير / الدكتوراه
في التحريض

=====

تحت عنوان : باللغة الانجليزية : Safety and efficacy of repetitive
high-pressure alveolar recruitment maneuvers in
the management of critically ill patients with acute respiratory distress
Syndrome

: باللغة العربية : مدى أمان وكفاءة علاج مرضى الحالات الحرجة
المصابين بمتلازمة الأزمات التنفسية الحادة بطريقة تطبيع الحويصلات
الهوائية باستخدام الضغط العالي المتكرر

بناء على موافقة الجامعة بتاريخ ١٤ / ١٢ / ٢٠٠٥ تم تشكيل لجنة الفحص والمناقشة
للمقالة المذكورة أعلاه على النحو التالي :-

١. د. فاطمة عبد الخالق أبو رابية عن المشرفين
٢. د. يحيى حلمي خاطر ممتحن داخلي
٣. د. محمد محمد عبد اللطيف ممتحن خارجي

بعد فحص الرسالة بواسطة كل عضو منفردا وكتابة تقارير منفردة لكل منهم انعقدت اللجنة
مجتمعة في يوم الثلاثاء بتاريخ ٣ / ١ / ٢٠٠٦ بقسم التحريض مدرج القسم
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التي توصل اليها وكذلك الأسس العلمية التي قام عليها البحث .

قرار اللجنة : قبول الرسالة

توقيعات أعضاء اللجنة :-
المشرف الممتحن

الممتحن الداخلي

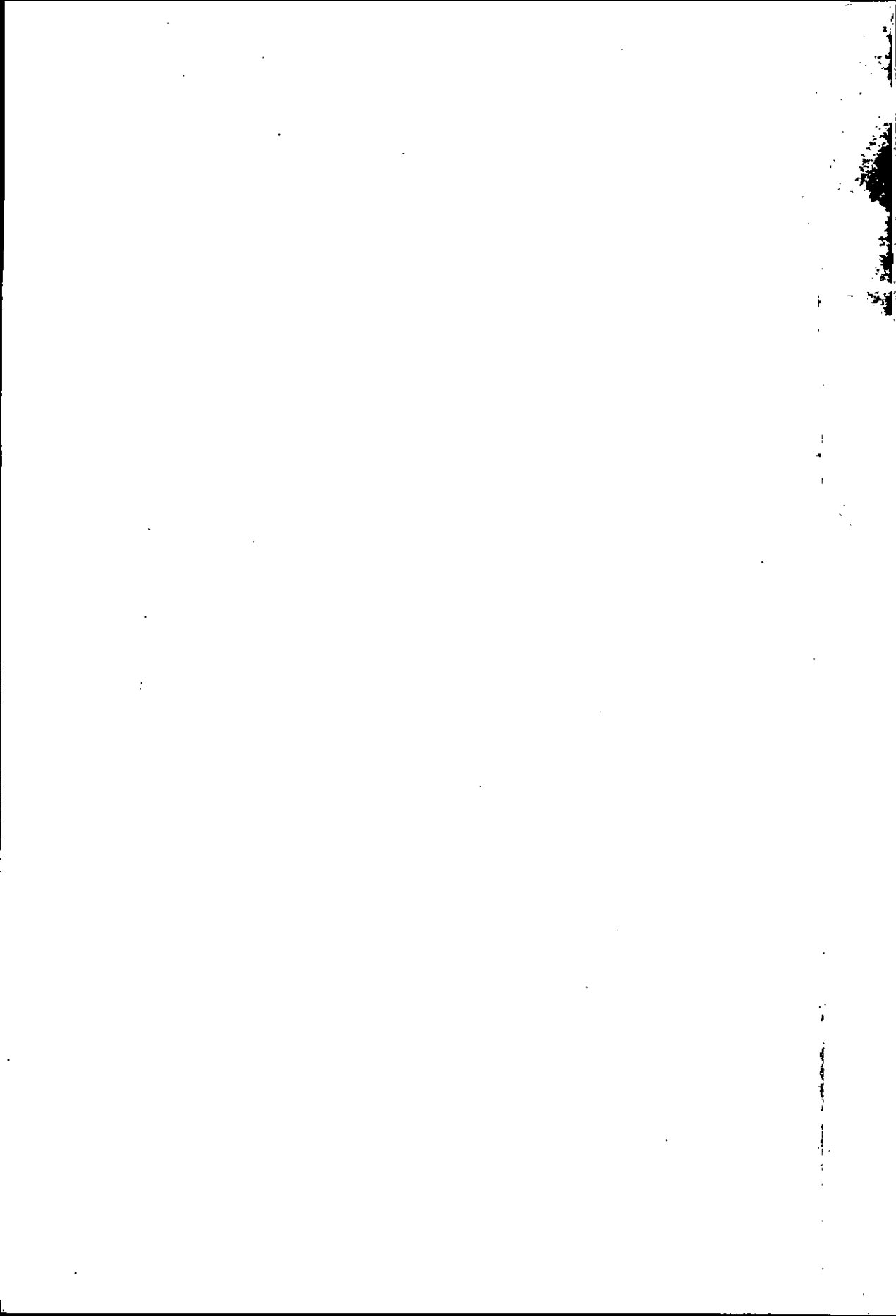
الممتحن الخارجي

د. محمد عبد الله

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د. فاطمة عبد الخالق

عصام



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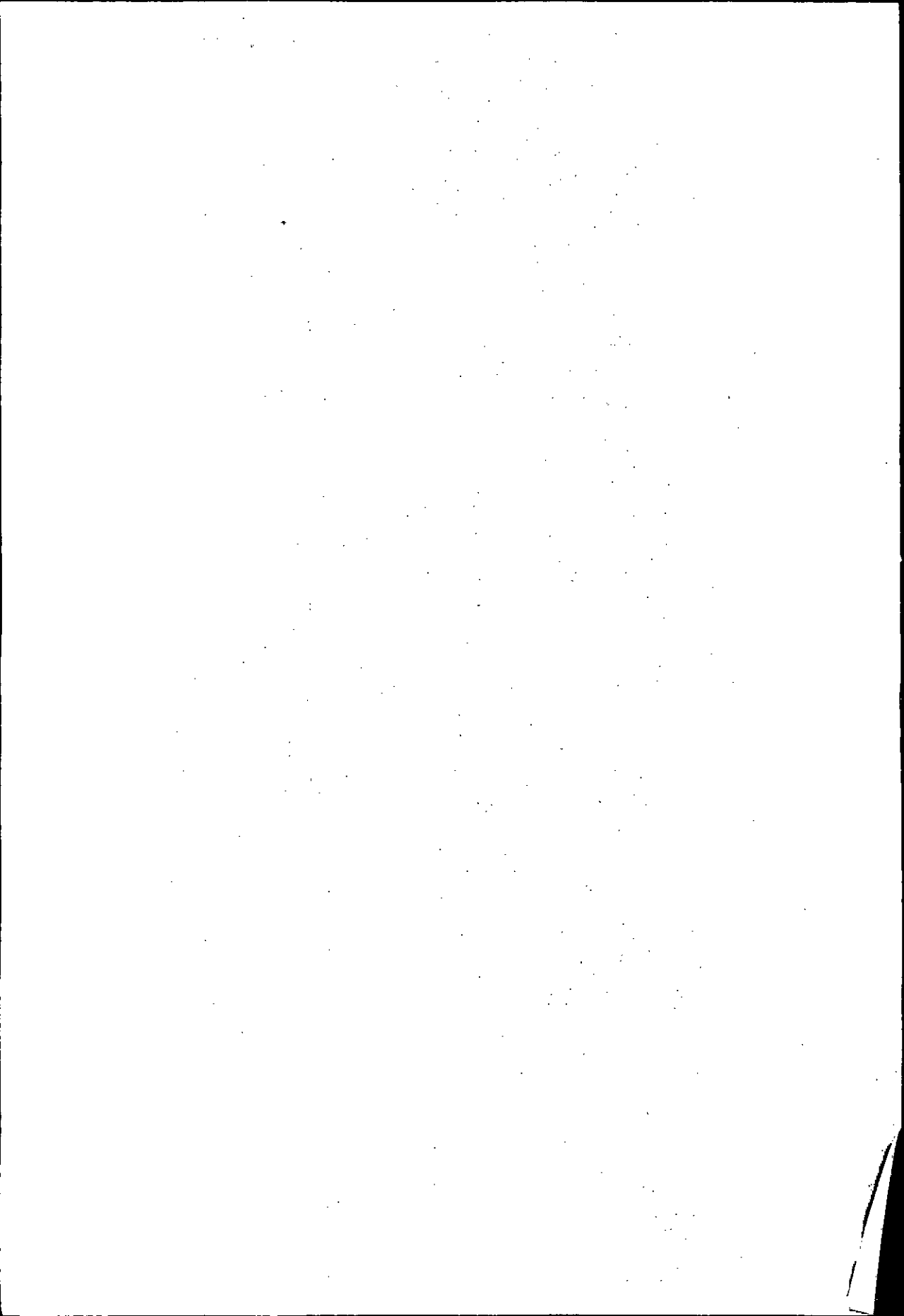
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George Eshak Loza

2005



Abstract

Rationale and Background: Alveolar recruitment is a major goal of mechanical ventilatory support for patients with ARDS. Various forms of recruitment maneuvers have been established in human or animal subjects. Sustained inflation within the range of 30-45 cmH₂O applied for 15-40 seconds have been found effective in improving oxygenation and respiratory mechanics.

Objectives: Our aim was to evaluate the effect of repeated ARM on gas exchange, respiratory mechanics and hemodynamic variables and to study the impact of repeated ARM on the weaning process.

Patients and Methods: Forty patients were studied. Patients were initially ventilated according to the ARDS_{Net} protective ventilatory strategy using a pressure controlled ventilation mode. Following 2 hours of conventional pressure controlled ventilation, each patient was evaluated and ARM was considered indicated when PEEP level of 15 cmH₂O and FiO₂ 0.6 fail to achieve the minimum SpO₂ (90%), PaO₂ (60 mmHg) and PaO₂/FiO₂ ratio (200). FiO₂ was increased to 1.0 and maintained for 10 minutes prior to recruitment maneuver. Recruitment maneuver (RM) was then performed (40 cmH₂O CPAP for 40 seconds). PEEP was then decreased immediately to 20 cmH₂O. Post recruitment PEEP was determined by decreasing PEEP gradually by 1 cmH₂O decrements aiming to keep SpO₂ between 92% to 95%. If SpO₂ level fell to < 92%, postinflation PEEP level was then set at the next to the last value.

All patients requiring ARM receive at least three maneuvers performed at 0 (first ARM), 8 and 24 hours. Following the second RM (done 8 hours after the first one), PEEP was decreased immediately to the level at which the patient was maintained after 15 minutes of the first RM. Following

the third RM, PEEP was decreased immediately to the level at which the patient was maintained after 15 minutes of the second maneuver. FiO_2 was kept unchanged (1.0) till 15 minutes after RM, thereafter it was gradually decreased (0.1 every 10 minutes) with an objective to keep SpO_2 above 92%.

ABGs, plateau and mean airway pressures were recorded at baseline (before recruitment), 2 minutes, and at 15 minutes after the RM. Static respiratory compliance was also calculated.

Heart rate, CVP and direct mean arterial blood pressure were recorded at the same time intervals for respiratory parameters assessment.

Total duration of mechanical ventilation and the duration of ICU stay and survival rate were recorded.

Results: RM did not result in any significant hemodynamic changes. Alveolar recruitment maneuver resulted in a remarkable increase in tidal volume and static compliance of the lung. These two parameters were significantly increased ($p < 0.0001$) 2 and 15 minutes after each of the 3 ARMs compared with pre-ARMs values. Also, ARM allowed reduction of PEEP and plateau pressures.

ARM resulted also in a remarkable improvement of oxygenation. There was a highly significant increase in PaO_2 following each of the three ARMs ($p < 0.0001$), both at 2 and 15 minutes following the maneuver. Many patients were hypercapnic at the beginning of the study, because not enough tidal volumes were achieved with a P_{plat} limit of 30 cmH_2O . Fifteen minutes after the first ARM, PaCO_2 was significantly reduced ($p < 0.0001$) to almost normal, but some patients remained slightly hypercapnic. Fifteen minutes following the second ARM, PaCO_2 was

again significantly reduced ($p < 0.05$) to normal and remained as such till the end of the study.

Out of the forty patients, 8 patients (20%) died and the remaining 32 survived.

Conclusion: From the results we can conclude that repetitive high pressure (CPAP) alveolar recruitment maneuvers proved to be safe and effective in recruiting and maintaining lung recruitment with consequent improvement in oxygenation, easier weaning from mechanical ventilation and improvement in the overall outcome.

Key words: Recruitment maneuvers; acute respiratory distress syndrome; positive end-expiratory pressure; gas exchange; respiratory mechanics.

