Dedication

To those people who gave me
strength with patient,
faith with hope
Love
Wisdom
Peace

To the greatest teacher
Father

To the kindest woman
Mother

To the stars on my life
brothers & sisters
Acknowledgement

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Abstract

This is a case control study conducted in Khartoum state during the period from April 2006 to October 2007. The study aimed to assess the industrial hazard among workers in printing industry (primary aromatic amines), which induce bladder cancer, and detecting the cellular changes associated with, using Pap stain.

150 urine cytological specimens were collected, 100 specimens were collected from printing industry workers which divided into two groups, the first group samples were collected from workers who were in direct contact with printing ink such as printing technicians and the second group samples were collected from workers who were not in direct contact with printing ink including other occupations in side the printing industry, such as book binders, packaging workers, photographers, etc, (cases). And 50 urine specimens were collected from non-printing industries workers (controls). This urine samples processed and microscopically examined. The cytological smears revealed the following findings:

Many superficial squamous cells were found in 24 (24%) specimens, all of them from case group. Most of specimens showed dense inflammatory infiltrate and the chronic inflammatory cells detected in 19 (19%) of the case group and in 6 (12%) of control group. 5(5%) of the cases showed acute inflammation, with 0 (0%) of control group. Other cells including basal and Para basal cells, umbrella cells detected in 29 (29%) samples all of them from case group.

Cells with dysplastic feature detected in 5 (5%) specimens from the case group with P-value (0.028), no similar finding in control group. The result was only significant at the 5% level for the presence of cells with dysplastic feature among workers in direct contact with printing ink.
اجريت هذه الدراسة في ولاية الخرطوم في الفترة من يونيو 2006- أكتوبر 2007. تهدف الدراسة
لتحديد اثر المخاطر الصناعية (الأمراض العضوية الأولية المكونة لحبر الطباخ) على عمال
شركات الطباخ كمسبب للتحولات السرطانية في المثانة وتحديد التغيرات في النمط الخلوي
(في الجهاز البولي باستخدام طريقة صبغ خلوية (بابا نيكولاو).

تم جمع 150 عينة للدراسة، خصصت منها 100 عينة كعينات اختبار وقسمت لمجموعتين،
مجموعه للعمال الذين على احتكاك مباشر بالحبر ككنبي الطباخ، والذين ليس لهم احتكاك
 مباشر بالحبر وتشمل الوظائف الاعرف من جمع ، تطبيق، تغليف وتصوير الخ... وخصصت 50
عينة كعينات ضابطه. تم معالجة العينات وفحصها مجهرياً لتحديد التغيرات السرطانية في
النطاق الخلوي.

تم تحديد 24 (24%) عينة من عينات الدراسة تحتوي علي العديد من الخلايا الطلائيه
الحرشفية، السطحيه، ولم يتم تحديد العديد منها في العينات الضابطه. تم تحديد خلايا التهابه
مصحوبه بخلايا لخري في 29 (29%) عينة من عينات الدراسة، 19(19%) منها خلايا التهاب
مذمن و 5 (5%) التهاب حاد. تم تحديد 6 (6%) من العينات الضابطه تحتوي علي خلايا
التهاب مذمن ولم يتم تحديد أي خلايا التهاب حاد في العينات الضابطه.

تم تحديد تغيرات سرطانية في 5(5%) حالات في عينة الدراسة (البول) ولم يتم تحديد وجود
اي حالة في العينات الضابطه. وهذا يشير الي ان التعرض لحبر الطباخ هو مسبب اساسي
للتحولات السرطانية في النمط الخلوي للمثانه، و هذه النتائج ذات دلاله إحصائيه عند مستوي
الدلال.0.028.
**List of abbreviations**

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<td>4-ADP</td>
<td>4-Aminodiphenyl</td>
</tr>
<tr>
<td>DPX</td>
<td>Disterene Plastic Cyzer Xylene</td>
</tr>
<tr>
<td>EMAS</td>
<td>Employment Medical Advisory Service</td>
</tr>
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<td>EA50</td>
<td>Eosin Azure 50</td>
</tr>
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<td>FNAC</td>
<td>Fine Needle Aspiration Cytology</td>
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<tr>
<td>OG6</td>
<td>Orange G6</td>
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<td>H and E</td>
<td>Haematoxylin and Eosin</td>
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<td>Pap stain</td>
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